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A NURSERY SCHOOL EXPERIMENT

Descriptive Report by

HARRIET M. JOHNSON

with a Section on Music by

CARMEN S. REUBEN

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BUREAU OF EDUCATIONAL EXPERIMENTS

144 West 13th Street, New York

1922

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INTRODUCTION

Why do we want such young children? The question has been asked us oftener than any other since our Nursery School was started some three years ago. We have two answers and neither is that of the Day Nursery or the English type of Nursery School. Unlike these other organizations we did not set about our task of caring for children from fifteen months to three years of age because of the economic situation of working or professional mothers,—though this situation is distinctly a part of our problem. Our answers are not in terms of social or economic need. Our first answer is in terms of educational need: we feel that the educational factors in the environment for babies need study and planning as much as and perhaps more than those in the environment of older children. Our second answer is in terms of research: we feel the need of fuller scientific data concerning children's growth,—growth of every sort that is measurable or observable.

Now what "educational need" do we feel for babies under three? The following reports by Miss Johnson and Miss Reuben should answer this question. They give a picture as far as we have worked it out of an environment designed for babies; designed to give them rich sense and motor experiences; designed to give them scope for learning through experimentation; designed to give them adventure without danger to life or limb; designed to give them contacts with others without demanding inappropriate adjustments; in short, an environment planned with educational needs in mind. Of course the physical needs are rigorously attended to. The babies are not only under constant expert surveillance but recommendations given by family physicians for individual children are scrupulously adhered to. All the physical side is thoroughly incorporated into the Nursery procedure and thoroughly recorded. But this is not the field where experimenting is taking place. We are not experimenting in diets nor in the amount of clothing nor in the countless physical details to which we attend. We are experimenting in the equipment and situations which lead to muscular coordination, to experimentation, to purposeful activities, to emotional stability. We are noting, for instance, the amount and kind of climbing a two-year-old can do, the degree and kind of response he makes to various sense stimuli, the amount and kind of contact with other children and with adults that he can bear without strain, and the kind of use he makes of his body and of all his surroundings. Miss Johnson's report is a description of the set-up in which the children find themselves and the use they make of it. It is our first answer to the question of why we wish young children.

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Our second answer,—that we feel the need of scientific data concerning children's growth,—is not as evident in the report. Nevertheless it is the point of view from which we started and is still the center of our attention. Some six years ago the Bureau began its attempt to study children's growth, to measure and record growth from many angles and in many ways. Our laboratory has been always in schools,—some public and some private. The aim underlying all the Bureau work has been to get specialists and schools together for their mutual benefit. We have wanted schools, which are providing "an environment" for children, to know whatever there is of accurate thinking and information regarding children and their growth; and we have wanted research into children's growth conducted in close connection with their activities (both of play and of work),—not in isolated laboratories. We found, however, that this connection between the children's activities and our research was more nominal than real in the public schools. Indeed, it needed a very special kind of private school (and also a very special kind of research staff!) to make this connection either vital or significant. Such a school we think we have in the City and Country School. Caroline Pratt, Director of this school and also a member of the Bureau, early offered her school as a laboratory. From the beginning we have felt this offered unique opportunities for research, for the study of the complex interaction of children and their environments. For this school regards as the "environment" all the factors which influence a child's growth,—the school equipment, the general set-up, the curriculum in the narrow sense, the teacher, the children in the class, the child's home, the city streets,—and regards its own function as essentially that of adapting all these factors, so far as it is able, so that the child is released to normal functioning, physical, mental, and social. Such a school is not only the best place for children to grow in but also a real laboratory in which to study growth.

But Miss Pratt's children do not go below three years of age. The overwhelmingly significant early years of growth have passed. She receives children with clearly defined sets or habits. Had they as babies these different action patterns from the beginning? Or what environmental influences have brought them about? To study growth of children in the first three years the Bureau opened the Nursery School in 1919. These two schools with the children from eighteen months through the eleventh year afford the Bureau its present laboratory.

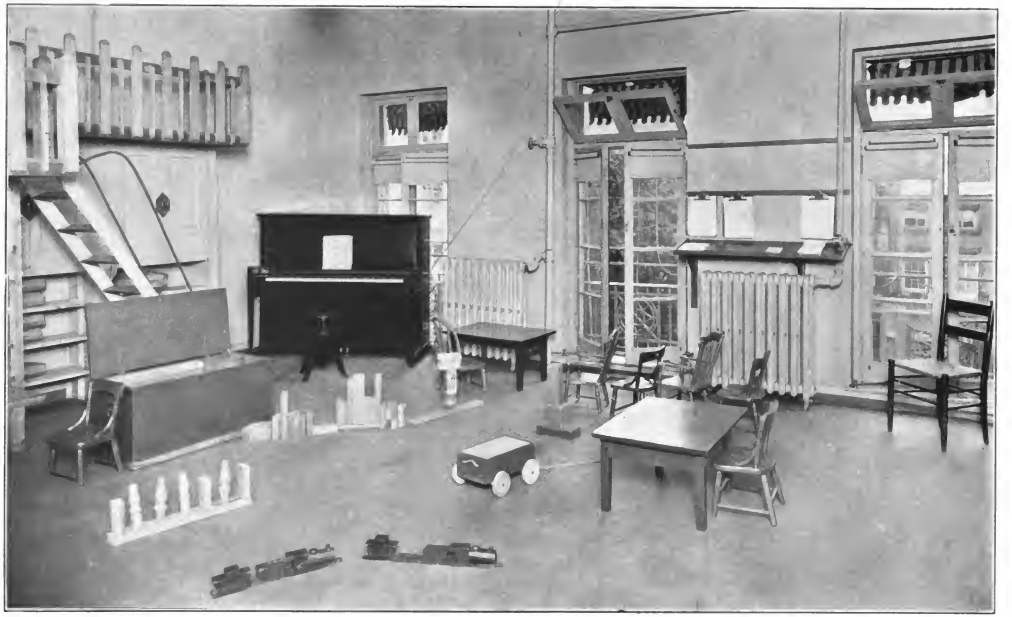
Our study of growth has been in the charge of a research staff. From the beginning this staff has included a physician, a psychologist and a social worker to gather home histories. Other members added for special experiments and for varying numbers of years have been a recorder, who worked on the technique of school records, a health worker, and nutrition workers. These members of our research staff have, to a certain extent, worked with Miss

Johnson either on the procedure or the records in the Nursery. The more technical laboratory data, in particular those gathered by physician and psychologist, accumulate slowly. They cover a range from the general clinical picture of the children gained in an hour's examination, to X-rays of chests and cardiagram measurements, and to schematograph records of posture; from a study of blood sugar under fatigue, to the records of the Stanford revision and performance tests. Already they give growth records of some individual children over a succession of five years; already the numbers of some age groups amount to 65 and 70. Slowly they are filling gaps in our knowledge; slowly they are building a conception of growth. To get this continuous sequence of records and measurements on growth is our second answer to the question of why we wish such young children.

It is obvious that the problems open to our experiment with babies are extremely big and our experience and our results are extremely small. In fact, we do not feel like talking about "results" at all. This first report of our Nursery School represents not our final thinking but "our thinking up to date." We believe that experimenters should share their thinking as they work,—their aims, their programs, their methods of attack, their current findings, and even their hopes for the future. At the present moment many are groping their way towards a new conception in the treatment and study of babies. We are among them. This report aims only to show how we are making the effort to study the educational factors in the environment of small children and to gather scientific data concerning their growth.

LUCY SPRAGUE MITCHELL,
Bureau of Educational Experiments,
New York City.

July, 1922.



THE PLAY-ROOM—ADULT FURNISHINGS ARE ELIMINATED AS FAR AS POSSIBLE.

THE NURSERY SCHOOL

The Nursery School is completing its third year as an undertaking of the Bureau of Educational Experiments. The initial steps toward the organization of this experiment were taken four years ago when the parents of six small children between the ages of nine months and two and a half years with a Director, carried on a Nursery School, giving the children all day care and a program approximating in many ways the one we have attempted.

The set-up for a Nursery School is of necessity more complicated than that of any other similar school group. Ideally the arrangement should be that of a home in its intimate unity and in its equipment for physical care; but it must besides be planned for children, not for adults, in its space and furnishings. These requirements differentiate it from the day nursery on one hand, and the school on the other. The problem has been further complicated in our case by the fact that we are considering the research aspects and possibilities as well as the educational features. In other words our first aim has been to provide for our children an environment favorable to their fullest development, and this of necessity includes provisions for physical care as efficient as those of a well-ordered home. Our second aim has been to work out through our records a method of checking up our educational procedure and of gathering data which could be used for research purposes.

In a discussion of our experiment a statement regarding the space provided and its arrangement, the age and number of children, the equipment chosen, the staff and its duties and the program would seem the best method to make clear our aims in setting up the Nursery School and whatever contribution we may have to make to better knowledge of the pre-school child.

PLANT

We believe that space indoors and out, is the first essential for children of this age, especially since their city homes are usually apartment houses with no out-of-door playgrounds. The great adventure of children of a year and a half is that of locomotion and balance, learning to use their legs in walking and climbing, and up to three and beyond vigorous full-body activities characterize their play. Moreover true cooperative play which would hold a group together has not yet developed. There is, therefore, much more tendency to interfere with each other if they are in restricted quarters.

During the first two years our quarters were the two lower floors of old houses, with outside porches for sleeping. The house arrangement was for the most part very satisfactory. It gave a very spacious indoor play-room which could be divided when the children needed to be separated; it also gave us extra sleeping space since half the big room was adequate for either play or sleep, and an additional room on the lower floor could be used either for dining room or for an overflow play-room.

Aside from the additional space and the ease of caring for babies on a first floor nursery our present quarters are much more suitable and it is this set-up which I shall describe. The essentials remain constant and can be met under a variety of conditions. They are briefly: a generous indoor and outdoor play space, sleeping quarters isolated from the sound of voices and capable of being divided so that sleepers will not disturb each other, an isolation room, a good sized kitchen and dressing room with toilet.

1. Play Rooms: Indoors children need to carry on vigorous running and jumping as well as quieter floor play. The two activities must not interfere with each other. Our play room faces south and contains about five hundred square feet of floor space. A balcony with steps at one end and a slide extending into the room occupies one side. Our aim is to eliminate adult furnishings as far as is possible in order, first to free as much space for the children's activities as possible, and second to limit as much as we can forbidden pursuits and the incessant correction that an adult environment entails.

2. Sleeping Quarters: In a group like ours there are likely to be children sleeping in the morning and in the afternoon. We find that in order to assure the best results we must have rooms removed from the sound of children's voices, the possibility of complete isolation for certain children and a method of separating all cribs so that there is little or no consciousness among the children of each other's presence. Our sleeping quarters consist of a narrow room, approximately 22 by 6 feet, with three wide casement windows, and two smaller rooms opening from it. Slat cribs fastened against

partial partitions and fitted with individual awnings effectually screen the children from each other. In the adjacent room we have carioles so that it is possible to put six children to bed at once. The ideal arrangement would be properly ventilated cubicles so that each child would be completely isolated but that is practically impossible in the limited space of a city environment.

3. KITCHEN: We conceive a child's entering the Nursery School as his taking his first step out from his home into a more generously spaced environment, less personal, but essentially that of a home, differing from his own in that it is planned for children not for adults, but where certain adult activities like the preparation and serving of meals, go on in a place which is open for his investigation.

This means that the kitchen is large enough so that the presence there of a child or two does not seriously impede operations. It has the usual kitchen furnishings, and since laundry has to be done every day, a tub as well as the

SLAT CRIB WITH INDIVIDUAL AWNING

sink. We use for the cooking a Toledo Steam Cooker which economizes fuel and attention, and also conserves full food value and vitamine content.

4. Dressing Room: Taking children to the toilet, washing and dressing them form a large part of the Nursery School program. It is more convenient not to have the toilet enclosed and we have a good sized room where all these operations can be carried on at once.

We find it better to have wash bowls set at normal height so that experiments with the taps will be carried on only under adult supervision. A broad shelf or table where the children can sit to be washed and dressed is convenient. It should be about table height but five feet long and broad enough so that a child feels no insecurity in standing on it. We have used a bath tub with a fitted cover as a very satisfactory substitute for the shelf. There are cupboards and shelves for first aid materials and for supplies, and fixtures for towels and face cloths. A wide shelf holds the wire filing cases which we use for individual clothing. Rubber-lined bags in which soiled articles are returned home and fresh clothing brought back hang in the dressing-room. The scale is set on a fixed platform and is to have a screen fastened around it to protect it from small marauders whose investigating impulses tend to invalidate our weight figures.

ADVENTURE

THE ROOF PLAY-GROUND AFFORDS A MAXIMUM OF SUN

5. Stairs: Climbing and walking up and down stairs are so necessary a part of a runabout's experience that there must be provision for this activity. If the nursery occupies two floors this essential is simply met, but on one floor an extension of the play space by a balcony will give an opportunity for the stair climbing experience. We climb a wide flight to the roof play ground and the indoor slide besides has open steps leading to a balcony.

6. Outdoor Play Space: One of the advantages offered by the Nursery School is that the children are kept out of doors for the greater part of the day whenever the weather is suitable. Outside as indoors the larger the area the better. A yard as large as those back of the old city houses is probably as small a space as eight children ought to have if they are to play all together, and if they are to be allowed a maximum of free activities. Much has been said of the value of dirt beds, but they can not be used during the winter, and children under three have not the strength to spade up the soil alone, so that they really get little from the contact that they can not get more fully from sand.

The advantages of a roof playground are a maximum of sun with the consequent rapid drying after snow or rain, clear air, removal from the confusion of noise and from the presence of other children, which is especially important in a school plant, and a new range of visual and auditory experiences which has proved of unexpected value.

Our present plant has a playground extending over the roofs of two houses. The hall and stair-well break the space and an area of about 17 feet by 13 feet is glass enclosed. A space about 17 feet by 18 feet is filled with rounded quartz pebbles to a depth of 8 inches, with thorough drainage, and there the apparatus is placed. The remainder of the roof is tiled. In the center the dumb waiter shaft rises and about it we have built a seat which the children use in various activities. A cement sand box with a water-proof cover is built against a chimney that divides the roof near the shelter.

A NEW RANGE OF VISUAL AND AUDITORY EXPERIENCES

STAFF—NUMBER OF CHILDREN—AGE RANGE

We believe that there is no process in the care of a child that is not educational to him and illuminating to the adults who are trying to learn from him. Therefore, we as teachers assume the entire care of the children. We include no maids on our staff except one for cleaning and laundry work. Since the first year the cooking and serving of meals has been in the hands of a teacher.

We planned originally for ten children but we thought it best to enter them by degrees, taking first three or four who were already acquainted with one of us at least, so that each new entrant should find a somewhat integrated group. As the year progressed we found that two teachers were necessary for eight children. It must be remembered in justification of this staff that besides the physical care of the children, which we aim to make as efficient as that of a well organized home, we are keeping very careful and detailed records. Neither of these pieces of work can be neglected at the expense of the other, both are very exacting in point of time and in the amount and sequence of attention. Moreover we must work over the records we take, and prepare to vary procedure and to supplement our materials or change our environment if the need of such change is shown.

Again this year we have attempted a registry of ten, adding the new children late in the year when the group was well established and when we were assured of a third assistant. Again we are convinced that eight is a more satisfactory number. A social group of two-year-olds is quite different from one of "fours." It is a group of individuals, playing individually. Too close contact results in interference and in a disturbance of the serenity which is essential for success. If the group grows there must be an increase in space as well as in attendants so that an individual or a few children can be removed for play elsewhere.

It must be remembered also that the occupations of our children are not dictated. The materials lie open to them and we encourage their impulse to explore their environment and to investigate and experiment with whatever they find there. They must be assured safety in their explorations if the spirit of inquiry is to be fostered. This means the constant presence of an adult and a degree of attention that would be unnecessary in a more formal program.

After the first year we decided to limit the age range to from about eighteen months to three years. We are more and more convinced that the homogenous group is desirable. Advocates of a mixed group always refer back to the family unit as a model. We believe that the extension of the family grouping into the school is unwise. The older children have either to

submit to continual interference by the younger ones or they adopt the role of mother or nurse, in which case the younger tend to become passive and lose their impulse to independence and initiative. The constructive and purposeful functioning which we expect from the older group is turned into artificial channels.

At three, after a Nursery School experience children seem more ready for a more closely organized program and our children are then sent on to the first group of the City and Country School. Children younger than eighteen months usually do not walk with entire facility and we are not equipped to protect them enough from floor draughts and other exposure to cold. The adventure that the set-up for run-abouts must provide is also more elaborate than is necessary for creepers, so we do not plan to take children younger than a year and a half. We hope eventually, however, to be able to admit children each year at the lower end of the scale so that we shall have two years' observation of each child.

MID-MORNING LUNCH ON THE ROOF

PLAY EQUIPMENT

Our general aim has been to provide the children with play material which they would use to further their impulses toward activity. The chief interests of children of the age we have under consideration can be stated as concerned with play that gives them facility in locomotion, and that allows them to put out a maximum of physical energy, and play that gives them an opportunity for sense experience. That is, they seek occupations that will give them vigorous physical activities with no defined purpose toward which they are putting out their energy, doing normally the thing which is physiologically most important at this age.

We may illustrate this classification by citing the following activities: first, running and climbing; second, jumping, throwing, pulling, dragging, hauling carts about and shifting materials in and out of boxes, chests and other receptacles; and third, manipulating all sorts of materials of varying forms, colors, sounds, textures, weights and consistencies.

These activities are in themselves useful, and moreover through them children are progressing toward more constructive purposes. Our interest is in growth and in the attack children make on their environment through dramatic play, through the development of skill in their chosen pursuits and through an inventive use of the materials at hand. We see the beginnings of these interests in the play of the youngest children, and when a free opportunity is provided development comes, not only with age, but also with the accumulation of a background of experience and associations which a child taps for his play activities. If he is not stimulated to inquiry and encouraged to use materials freely and to adapt them to purposes of his own, his background is less rich and his development is to that degree retarded. Experimentation on the part of our babies is not elaborate but it is no less real.

We conceive our problem to be building up an environment, and developing a procedure which will not only give children an opportunity for the full exercise of their physical powers and for real adventure, but which will also look toward the growth of these impulses into directed and organized activities. Beyond this we are opening up to them the world of social contacts and social relationships, and it must be remembered that this is the feature of our experiment most needing careful consideration. Taking children under three from their homes and placing them in a group of their peers demands from them fundamental adjustments. Whether or not those adjustments are wholesome and contribute to the health of their emotional life, depends in part at least upon the way they are introduced into the activities of the group. We believe that at first children must be protected from too close social contacts,

THE APPARATUS STANDS IN A PEBBLE-FILLED SPACE

that their individual interests must be allowed full scope, and that little by little their participation in activities that are common to all the children will integrate them with the least possible amount of strain and friction. If we accept the thesis that early sets determine or affect a child's later emotional life, we can not fail to realize how fundamental and far-reaching must be the readjustments he makes in building up new relationships and in cutting home ties, in finding himself one of a group instead of the center of an adult family. If we did not believe that these adjustments were essentially wholesome, even more if we did not feel assured that the early social experience makes for a more healthy and normal emotional life, we should not feel justified in our undertaking. We find even in so small a group that many of the children have already set up patterns of behavior that make social relationships difficult for them. In most cases, I should say the individual home situation has been responsible for these habits, such as for instance, reluctance to make social contacts on the part of an only child who has never known children, dependence upon adult companionship in the case of a child under constant care of a nurse, or an emotional drive toward his mother with resulting "tantrums" on the part of a child whose mother has been his constant and

sole adult companion. In all cases cited the nursery environment, that is a world of his own inhabited by his peers, cleared up or entirely removed the difficulties. We believe that the contacts and relationships made possible in the Nursery School will do much toward bringing about in our children an increased freedom in their social and emotional life.

In our choice of equipment, activities with the larger muscles govern us largely. We attempt to duplicate certain things like sand toys, small carts, drawing material, etc., so that the gregarious impulse which causes children to choose the same occupation at the same time may be satisfied. On the other hand in order that individual choice may play a part and that the children may learn to consider individual rights, there are certain single pieces of apparatus or play material.

Occasionally we try out special toys or other material but the following list gives our regular, permanent equipment:

LOW SWINGS CAN BE USED STANDING

SHOWING YARD BLOCKS AND PACKING BOX, THE FLOOR OF TILES, AND CEMENT BORDER OF PEBBLE-FILLED SPACE

THE SAND BOX IN USE—LID RAISED

APPARATUS—PLAY MATERIAL

Out of Doors

Slide.

2 low swings.

See-saw plank, 12 feet long by 1 foot wide.

2 saw horses.

2 large packing boxes: 23½ x 42½ x 29½ inches, 48 x 38 x 30 inches.

3 dozen yard blocks, hollow blocks, 4 x 10 x 10 inches.

Boards. This was odd shelving material, about ⅞ inches thick, some shorter and some longer pieces.

Painter's ladder, steps.

Sand box.

Pails.

Spoons.

Trowels.

Shovels.

Perforated sink shovels.

Small pans and cups.

Skylight peak, 27 inches high, and skylight seat, 15 inches high.

Three movable steps, 18 inches high.

2 kiddy cars, small, low.

One wooden horse, set on casters, 15 inches high.

Large express wagon.

Small, low cart on wooden wheels.

Small "Trailer" cart.

Brooms.

Rubber balls, various sizes.

Basket ball.

Hammers.

Nails.

Odd bits of heavy lumber for nails.

Work bench.

INDOOR SLIDE SHOWING SETTLE-TABLE AND CHAIR USED BY BEGINNERS AS A HALF-WAY STATION

APPARATUS—PLAY MATERIAL

In Doors

Small tables, chairs and benches in play rooms.

Adult chairs and table.

Large ironing table settle.

Indoor slide.

Gymnasium mat.

Block chest.

Blocks: unpainted bricks, half bricks and multiples of that size up to three feet in length, triangles of two sizes; Montessori Pink Tower; turned pillars.

Montessori Brown Stair, Milton Bradley cubes: purple, blue, green, yellow, orange, and red.

Nested boxes, largest about 12 x 12 x 10 inches.

Montessori cylinders—three sets.

Wooden dolls—11½ inches—Schoenhut.

Large doll's bedstead, with mattress and pillows and covers.

Flatirons.

Covered boxes—about 8 by 14 inches.

Above boxes converted into carts.

Extra wheels and axles.

Rubber balls, various sizes.

Plasticene.

Drawing paper and crayons, large size.

Swiss tuned bells, key of E flat.

Musical bells, set at either end of a handle, dumb-bell fashion.

Wooden tone bars.

Sand bar, sand paper covered boards, shaped like board erasers, with handles on one side.

Piano.

There are other incidental things, which have been rarely used, or which would not constitute a part of our intentional equipment. Much of this play material is on shelves behind closed doors; any of it can be had on request but it is not all exposed at all times.

PROGRAM

We attempt no stipulated program in the activities of our children. That is, there is no prescribed activity for any special time of day, except for the music period, which will be described hereafter. Certain details of their physical care, however, have definite place in the day and make divisions which might be called a program.

On arrival the children go at once out of doors if the weather is suitable. They stay there until mid-morning lunch at 10:30. Immediately thereafter the forenoon nappers are undressed and put to bed. The others return to the yard and play there until time to wash up for dinner. After the meal the afternoon sleepers are put to bed and adult lunch is served. The children who sleep in the forenoon come to dinner as they wake, and there are often toilet duties to attend to after the meal, so there is a period of indoor play of varying length. Sometimes the children are dressed early and put into the yard, where they are joined by the afternoon sleepers as they wake. Sometimes the indoor period extends so late that the group does not get yard play at all in the afternoon.

After the nappers are all up and dressed, about 3 or 3:30, comes fifteen minutes or so of music. During this time the activities go on freely, but we definitely go in from the roof for music, and the period is not a casual happening, but is planned for and announced. As can be seen, these stations in the day divide it and make the framework of a program.

If we are indoors all day there are certain materials that we present to the children, such as plasticene and crayons. Sometimes we are asked for these materials, but they differ from most of the equipment in that they are kept out of sight and out of the reach of the children. Musical bells, stringed instruments, sand bars and tone bars we deliberately choose for the children, and we usually supervise their use and set them before the children for definite and limited periods.

Out of doors we frequently arrange the apparatus for special experimenting, and after a period of play with it we re-set the stage. The sand box, too, is opened for a limited time, generally after the mid-morning lunch. All such intentional changes in the presentation of materials constitute our program. In the usually accepted meaning of the term, however, we have none.

RECORDS

We have attempted to develop a system of note-taking which will record the use of the environment in terms of the children's activities, the progress of the group toward social integration, and the growth of individuals in control and in facility and purpose in their use of the equipment. Along with these records we state our procedure with the children, our method of handling this or that situation, and our intention regarding the set-up and the experiences that we offer the group or individuals.

Many persons think of a Nursery School as a place where children can be given the same sort of physical care that the home provides, and can have the advantages as well of association with others of their own ages. This is all true, but what is less often recognized is that while we attempt to keep our attitude, our relationship with the children casual and unstudied, the environment is an intentional one, and we are trying constantly to test it and our methods in the light of the behavior and development of individuals and of the group.

We are, moreover, concerned with the research aspects of the experiment, and, together with the physician and psychologist, are trying to develop a technique of observing and recording children's responses in an environment where there are as few restrictions as the welfare of the group will permit. There have been many studies of individual children, but we have at hand little collected evidence about the reactions of children in groups, their ability to make social adjustments, the degree of muscular co-ordination and facility in handling their own bodies which they develop at different ages, and the methods they build up in learning the various processes which the use of the equipment and the social situation present to them. We have as yet done little more than state the problems tentatively. We are, however, attempting in our various types of records to meet two problems, first, that of keeping our environment, including teachers' methods, under scrutiny in order that it shall be as favorable for normal development as we can make it, and, second, that of amassing accurate data which can be used in establishing standards of growth.

We have an accumulation of two years' records which we regard as very incomplete. In a later section there are given quotations from them in order to illustrate our method of note-taking and the use of records to check up the progress of the children and the procedure of the teachers.

Our current records follow two forms: The individual daily chart on which we check in brief certain significant items and which also shows the height-weight figures, and a weekly summary gathered from a running diary account.

June 1922

INDIVIDUAL DAILY RECORD

B.G

Date	NAP In bed	NAP Asleep	NAP Awake	NAP Length	URINATION Fill	URINATION Wet	URINATION Nap	DEFECATION Time—Quality	APPETITE AND GENERAL BEHAVIOR AT TABLE	SOCIAL CONTACTS CHILDREN ADULTS	CRYING ATTACKS CAUSES	NOTES ON PHYSICAL CONDITION RECTAL TEMPERATURE
1	12 40	12 55	3 40	2 45	9 25 10 30 11 12 12 35		✓	o	Much less messy than usual. Not very fond of asparagus. Threw toast away - Received another and larger piece	A curious drive toward adult after nap. Seemed a response to affection	o	
2	12 45	1 15	2 30	1 15	9 30 10 45 12 12 40 2 30		Dry	o	Ate very well. Toast again hurled on floor.	None with children. Tends to stick to adults if noticed	Woke crying - rather tremulous - murmuring something which I could not understand.	
5	12 30	12 40	3	2 20	9 35 10 55 12 12 30		✓	o	Good appetite and technique. Warned about toast - did not drop it	Social with L and J (see notes)	o	
6	12 30	12 40	3 30	2 50	9 30 10 15 11 15 12 12 30		✓	o	" "	Affectionate to adult tho' not clinging as on the first.	Cried hard when J. dropped scuffer from top shelf of closet on his head	Weight 28.5 9-10 AM Height 36 (voided) Mother reports him very irritable at home
7	12 25	12 40	3	2 20	10 30 11 40 12 20		✓	o	" "	See notes.	Cried hard when he tipped himself over in wheelbarrow	
8	12 30 Waked by L	12 40	2 30	1 50	9 30 11 12 12 30 3 3 50		Dry	o	No spilling at all. Very good form - Expeditious	Affectionate but not dependent. Frequently came up for a friendly embrace, not staying long.	o	
9	12 30	12 45	3	2 15	10 11 12 12 30 3		✓	o	Messier than for last few days.		Cried hard when J. bit finger (B had abstracted J's property)	
12	12 40	1 20	3 15	1 55	9 30 11 05 12 05 12 40 3 55		✓	o	Good appetite Was helped a bit.	Very gay and social. Very responsive to advances of children or adults	o	Weight 28.5 9-10 AM (voided)
13	12 30	12 45	2 35	1 50	9 15 10 40 11 40 12 10 3 40		✓	o	Excellent appetite Fed self largely	"	Cried twice for actual hurts.	Today and yesterday I have noticed fingers in mouth only - just as he went to sleep.
14	12 30	12 45	2 35	1 55	9 30 10 35 11 30 12 25 3 15		✓	o	"	"	Cried once when he fell.	Fingers not in mouth at all. Teeth nearly all thru'

EXAMPLE OF INDIVIDUAL DAILY RECORD *(Reduced in size)*

INDIVIDUAL DAILY RECORD.

We built up the form of this record on the supposition that by it we could check up a child's degree of social and emotional adjustment to the environment at a given time and follow his integration in the group. Early in our experience as we worked on the problem with our children, these factors seemed outstanding: control of bodily functions, especially urination; length and regularity of nap; the attitude of the child toward his food, his ability to handle his implements, his appetite and readiness to accept new articles of diet; contacts, whether friendly or quarrelsome, made with other children and with adults; and the amount of crying and its causes. His physical condition, if there are unusual or significant manifestations is also recorded.

We have not yet evaluated the material from our notes and cannot say how significant they are except for current use, but we are convinced that these particular factors are affected, if not conditioned, by a child's degree of at-homeness with us. They also indicate his maturity in some instances, and deviations in them sometimes herald physical disturbances.

To a certain degree a child's development in these functions is dependent upon his age; that is, there is probably an approximate norm, and we can say, for instance, that by and large, children attain a fair control of the function of urination at about three, that by the second year they ought to be able to feed themselves with a certain degree of skill and efficiency, and that between five and six naps will be taken less regularly. We doubtless have some such general average in mind in making our judgments. We wish to verify these judgments, to note variations, and to find if possible what causes a generally slow development or sporadic slumps.

At the end of each month we summarize on the back of the chart the daily record. In this way the months can be easily compared and progress or change noted.

M. M. (21 Months) INDIVIDUAL RECORD—MONTHLY SUMMARY.

October, 1921.	Present 13 days. Absent 3 days.	
Nap:	Average time awake	12 hours
	Average length of nap	1.8 hours
Urination:	Average number of times daily	4
	Accidents	2
	During nap, wet 12 times, dry 1.	
Defecation:	Number, 6 times at school. Quality, normal.	
	Quality, normal.	
Appetite:	No appetite. Slow and unwilling to eat. Cried over dinner on 7 days. Did not feed herself.	
Social Contacts:	Very affectionate to adults, bidding for their attention, especially during first few days. Made occasional advances to children but till the last few days of the month they were in the main controversial.	
Crying Attacks:	Crying recorded on 12 days.	
Causes:	Going home in taxi, till last few days. Being put to bed.	
	Injuries whether slight or serious. Being given dinner.	
Physical:	Examined on entrance. Has been in town all summer and has had a bad attack of whooping cough. Seems in poor physical condition.	

M. M. (22 Months) INDIVIDUAL RECORD—MONTHLY SUMMARY.

November, 1921. Present 18 days. Absent 1 day.

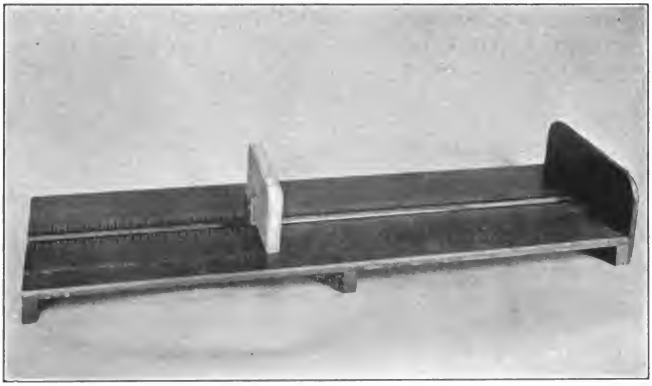
Nap:	Average time awake ..... 13 hours
	Average length of nap ..... 1.9 hours
	Still sucks thumb and has to be gloved.
Urination:	Average number of times daily..... 4
	Wet in nap 18 times, dry none.
	Accidents 4
	Can go longer period than any other child without having to urinate.
Defecation:	Number, 7 times; 2 in one day. 1 involuntary, in nap.
	Quality, normal except the involuntary one which was soft and ill-digested.
Appetite:	First record: resisted feeding but was taken to kitchen where under pressure she finished more than half dinner. After an absence appetite improved and she fed herself till last three days when she was very slow and needed constant prodding. Fed herself a part of every meal.
Social Contacts:	Records inadequate but showing progressive good humor. Very snappish if opposed. More affectionate to adults than to children but some friendly advances to children recorded.
Crying Attacks:	Crying recorded on 6 days. Did not cry in taxi nor for parents' departure.
Causes:	Injuries, no matter how small.
	Prodding or forcing at dinner.
	Interferences or advances from children.
Physical:	Cough bad all through month.

PHYSICAL GROWTH CHARTS.

Shortly after entrance, Dr. Lincoln, the physician of the Bureau staff, gives each child a thorough examination, preceded by a laboratory analysis of a specimen of stool and urine. Following the examination, recommendations are made to parents and to the nursery as well. The charts remain on file in the physician's office, where they are available for reference.

We consider the physician a member of the Nursery staff, and she is consulted on questions of arrangement of quarters, activities, diet and records. The current contribution which she makes in the physical examination is an essential part of our work of caring for children, and her research program is one in which we are sharing.

Our own physical program is a modest one. Stripped weights are taken on the first day of each week between nine and ten-thirty. The weight is taken directly after the bladder is emptied and also after the bowels are evacuated in the case of those children who have a morning stool, which is usual. Every four weeks the children are also measured. At first we attempted heights, but it was manifestly impossible to get accurate measurements of children who



BOARD FOR TAKING HEIGHT MEASUREMENTS

were just beginning to stand without support. Miss Forbes, the Bureau health worker, devised a measuring board to be used with the child in a recumbent position.*

We have also been experimenting with photographs of the children stripped, against a background ruled in inch and a half squares, in order to get a measure by inspection of proportionate length of legs, arms, head and trunk.

As is well known, the proportions of the new born are quite different from those of the adult, and the relative part taken in the total length by head, trunk and legs at different age periods is quite different.† Studies have been made which seem to show that increment in length and in girth of various parts of the body is gained by an alternating process.‡ We all note differences in proportional development as children begin learning to walk. We comment on the extraordinary size of the head in proportion to the rest of the

* Miss Forbes' instrument is very similar to that devised by Dr. Bird T. Baldwin and Illustrated in his study "The Physical Growth of Children," Studies in Child Welfare, Vol. 1, No. 1, Uvs. of Iowa, 1922 and also one made by Mr. Gilbert Tucker of the New York State Board of Health. Neither of these instruments was known to us at the time.

† Bardeen, C. R., *The Height-Weight Index of Build*, Pub. 272, Carnegie Inst. of Wash., pp. 483-554.

‡ Godin, P., *Growth During School Age*, Richard G. Badger, 1920.

body, or we generalize by saying that one child seems much more of a baby in his physical development than another. Whether or not these biological differences result in appreciable differences in behavior has not been the subject of investigation, as far as I know, nor has any study been made of them from the educational point of view.

We are now working tentatively on the thesis that there is a relationship between proportional development and types of activity. We find, for instance, that certain of our children whose muscle co-ordination, as shown in posture and facility in maintaining balance in walking, is less advanced than others of the same age, show also a proportional development approaching more nearly that of the new-born child. Is this only a coincidence, and what relationship has it to the types of activity offered to children? Are such children able to protect themselves in a free environment? Will they choose appropriate activities and avoid overtaxing themselves? In other words, is it enough to keep hands off? From our observations we suspect that it is, but we believe that the natural tendency of teachers to increase the stimuli if a child seems physically inert in comparison with others of his age must be rigorously controlled. We are now working with our physician upon a methodology for taking proportional measurements of the nursery children. Up to this time we have used our findings only as a check on our study of individuals.

The accumulation of these measures of growth is, of course, essential to our program and is valuable research material. We are asking various questions regarding seasonal variation in growth, rhythmic alternation in increase of different parts of the body and, as has been said, of proportional development to types of activities.

Porter's* figures on seasonal variation are based on work with school children. There are very few studies of groups of pre-school age.† Our numbers are small, but as our data accumulate we hope to make our contribution to the questions raised.

DIARY RECORD—WEEKLY SUMMARY.

Our current notes are taken in diary form, jotted down in small books as we can during the day while the activities are going on, and summarized weekly. The summaries are verbatim copies of the diaries, but the material is organized under the following headings, which indicate the line of inquiries we have raised regarding the children and the environment:

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* Porter, Wm. T.: *Seasonal Variation in the Growth of Boston School Children*, Amer. Jour. of Physiology, 1920, (52), 121-131.

† Bleyer, A.: *Periodic Variations in the Rate of Growth of Infants*, Arch. of Pediat., 1917, (34), 366-371.

1. Activities—indoors and out.
2. Social Contacts.
3. Emotional Reactions.
4. Language.
5. Music.

1. Activities.—Under this head we indicate how the play material is used, to what extent and to what purpose, and whether or not it meets the needs of the children as they develop. We list the various pieces of equipment, the slide, cart, shovels, etc., out of doors; dolls, boxes, balls and blocks, indoors, and record the part taken by each child. In this way, as time goes on, and our evidence accumulates, we learn how actively the material is used, whether it lends itself to varied and progressive uses, and what techniques and what purposes the children develop in the use of it. Upon this record we base our procedure.

2. Social Contacts.—We wish to know in greater detail than the individual daily record chart furnishes, what contacts the children are making with each other, how their consciousness of each other and their relationship in the group to each other and to the adults is developing, how their play impulses are affected, and whether or not there emerges any tendency to co-operative activity.

3. Emotional Reactions.—We are trying to study the effect on the child of bringing him into the group, how he adjusts emotionally to it, and how, in consequence the group becomes a unit. We note whatever we can of the affective life of the children, around what centers it revolves, how it affects the other children, and what causes emotional strain in the individuals or in the group as a whole. The second and third topics are closely related, often merge, and in the definition we give of them at least are frankly experimental. How significant they are we shall know only as we use and relate the material.

4. Language.—The subject of language development is one of our main interests, because we feel that it is one of the main channels of social and emotional expression. This is true whether one regards language in its technical and utilitarian sense, as a vehicle for the conveyance of thought or in its art or play sense, as a rhythmic instrument by which thought can be enriched and enlivened or arranged in pleasing forms or patterns.

The first words are probably attempted as other activities are, because of the urge toward sense or muscle experience. Babbling is in itself pleasant. As the range of tone and the control of the vocal organs increase, the pleasurable sensation grows. Bellowings for the sake of brute noise hold increased possibilities of pleasure as they increase their range and form and take on content. We believe, however, that the social element, the desire to communicate, to share, enters early into the speech beginnings if attention is given early to

conversation; and by conversation I do not mean making wants known, but sharing experience, the give and take of social intercourse.

In our diary notes we make no thoroughgoing attempt to collect vocabularies, though we do try to get occasional samples. At regular intervals through the year over a two-days' period, we note all words or expressions used by a child as we can in the course of our work with him. We are trying to follow the progress of the children's effort to communicate, to understand and to respond to the communication of others. We note the differences in the children in the need of a motor accompaniment to speech, in clearness of enunciation, in their method of acquiring speech and in their interest in words—their attention to language. This slips into our second inquiry regarding language as play or as a pleasurable instrument, whether as a rhythmic accompaniment or as a means of intensifying an experience. We note originality and facility in verbal expression and pleasure in the rhythmic use of language. (See "Intentional Procedure" for further account of language.)

5. Music.—The whole subject of rhythm in language, or of language as an art, very closely approaches music. This is the fifth heading under which we arrange our notes. The music program and the methods we use in our work with the children in music will be stated in detail in a further section of this report. It is the social significance of music that we are trying to trace, the interest shown by the children in it, and their use of it in their play, rather than the reproduction by the children of songs. Our records show what the children do during the music period, and how they react to the songs and phrases that we use as accompaniments to certain of their activities. We note their rhythmic play or accompaniments to the music, and their attitude toward the singing voice as it differs from uncontrolled shouts or bellowings. We also record musical or rythmic responses made throughout the day. The general feeling which we are trying to pass on to the children is that music, its enjoyment and use, is not a thing apart, to be reserved for the exceptionally gifted, but is theirs to the extent of their desire and ability to make it part of their social equipment.

RECORDS OF INTENTIONAL PROCEDURE.

Besides using the diaries as a general check, we have tried to segregate from them the record of individuals in order to see whether, as they stand, they can be used to indicate a child's progress toward social and mental maturity. We have taken very generalized topics representing abilities present from the first, but fundamentally modified by experience and by contacts as well as by time alone, namely: Bodily Control, Social Control, Associative Memory,—power to bring past experience to bear on a new situation, and Use of Language,—as a social tool and as play material.

As we began defining these abilities we realized that we had a very

definite and intentional attitude toward them and that it might be valuable to record the procedure that we are developing. Taking then, the above heads, I have tried to state the impulses and intentions that govern our attitude and our method of approach.

We believe that there is more rather than less danger in correctional work with little children. We are more afraid of imposing our wills than of letting the children go too far along their own paths. We desire above all to know where they are; to set up no barriers to a freely flowing emotional life. As far as we can we aim to make our environment and the social group the corrective material. We are constantly going beyond this standard, but we feel that it is altogether safer to set it for ourselves. I am now referring to such activities as those governing play interests and social reactions, rather than to such bodily habits as attending to eating at food time, to sleeping at nap time, etc. We believe that those habits easily become automatic if no emotional conflict has been set up, and the sooner they do the better, so we do bring the children into line on these details as soon as possible. Even here the establishment of a routine program with a group has more effect than any coercion on our part.

1. Bodily Control.

a. *Control of or voluntary attention to bodily functions.*—Our effort at training is confined to seating on the chamber at regular intervals which we attempt to make frequent enough so that the child will have little experience of remaining wet. After a child has control we exhort him not to forget to ask for the toilet, and we reprove him mildly when he gets wet. We express enthusiastic approval of dryness. We also attempt to accustom the children to casual treatment so that they will sit interchangeably on a nursery chair, the toilet or a chamber without fear or agitation.

We believe that too much stress has been laid upon acquiring the dry habit. Probably the habit of control can be acquired very young, but we do not know at what expense to a child nervously, nor at the sacrifice of what more important and dynamic interests. In the first place, it is surely done at a big emotional expense for adult and child. It fills the conversational horizon when there are many more absorbing subjects at hand that the child is ready for, and we cannot yet estimate the sex connotations which the emphasis upon aversion to the excreta may later contain. After the age (about three years) at which control is usually established it is largely a question of attention with normal children, and we are much more energetic in our effort to impress them with its importance.

b. *Interest in feeding self; ability to handle implements.*—We try to stimulate the child's interest in feeding himself, or rather, we cultivate it, as it is usually present. We put the spoon into his hand and make sure that the

attempt at getting food into his mouth is successful enough to ensure further trials. We do not entirely refuse to feed the older children if they wish it, often helping them with the last few spoonfuls which are difficult to scrape from the plate, and sometimes even starting a child off if he seems to want it. We should try not to do this often enough to make a child dependent upon us, but the hand co-ordinations involved are fine enough so that we do not dare insist upon a complete performance on the part of an unwilling child.

Our general attitude during meals is to set up the habit of quiet and attention to the business at hand. We make little conversation, seating the children so that they will be as little disturbed by each other as possible, and discouraging play. We make no effort to teach the children good table manners as such, but we try to improve their postures by pulling them back in their chairs, and we discourage messing with their food or handling it. We encourage their clearing off their dishes after they have finished, but we do not require it.

Caprices in appetite or vehement dislikes and reluctance to try new articles of food have made family feeding difficult and idiosyncracies in appetite rather than in digestion, have given rise to the saying, "One man's meat is another man's poison." An emotional connotation attaches itself to mealtime in many instances because of the method used to introduce unfamiliar articles, and the attitude assumed by the adult of an expectation of reluctance or refusal on the part of a child. We are sure that there are fewer idiosyncracies of appetite than mothers of "unusual" children would lead us to believe, but we are noting persistent reluctances, disinclination for milk and our success in cultivating a taste for it, and the way children react to the introduction of new foods. We do not call a child's attention to a new food, nor persuade him to try it. We decrease portions of an objectionable article, but we present it again and again with other well-liked varieties. When there is persistent refusal of it we try methods of diverting the attention from the food till it is taken and swallowed.

We watch the children's chewing habits and see that fluids are withheld till the mouth is empty. We give them a sort of homemade zwiebach in order to cultivate the taste for hard bread, and with the little ones we often use some sort of refrain like, "Crunch, crunch, munch, munch," or "Chew it and grind it and mince it very fine." Other refrains are, "Sippety-sip and down again," "Up cup, down milk, a long, long, long drink," "The bottom of the cup, drink it up," "A long, long drink for daddy," which we use instead of urging a child in so many words.

c. *Interest and ability to share in the dressing processes.*—We wash and dress the children on a table usually, so that we can stand at the process and be more free than if we held them. Also we believe that they become accustomed to standing or sitting on a height by that method. Another advantage

is that we can leave them for a second and find them in the same place when we turn back to them. This only till they learn to let themselves off.

In dressing the babies we try to call attention to the various articles as we put them on and to get their co-operation in the way of arms and legs. We found as the children came to us that there was a marked difference in their reaction to the dressing process. Some of them are entirely passive and lumpish, accustomed apparently to being stowed away into their clothing, while others find armholes and legs, hold up their hands and poke their heads through, taking some responsibility for the performance. We get their attention to the armholes and legs by games or songs like, "First one hand and then another," "Peek-a-boo, peek-a-boo, Richard's hand is coming through," or "Bobbie's hand goes in, Bobbie's hand comes out," making the child look into the hole and calling his attention to the way the hand comes out.

With the older ones we follow their interest in doing for themselves as far as it will go. Unlacing shoes and removing them is generally the first step. We get their interest in the lacing process as early as we can after the first glimmer of it appears, using the criss-cross song, or poking the laces up and letting the children pull them.

"Jane-O puts on her stockings,
Jane-O puts on her shoes,
Jane-O laces criss-cross, criss-cross,
Jane-O laces her shoes."

The same thing is true of the outdoor clothing. We do not try to teach the children to hang up their hats and coats. We found during the first year that they were physically so inadequate to these processes that they gained nothing from their attempts. Each child now has a stout wire waste basket into which all the outside clothing is put and which is then placed on a shelf. Practically all the children bring their baskets to us and drop in certain articles. They can all remove their hats, and whenever a child shows any interest in struggling out of a garment we give him that opportunity. As long as he has not acquired the technique we do not expect that he will do more than play at it. Even then we occasionally help him if he wishes it.

We carry on a good deal of play and much conversation with the children when we are putting on and taking off their outside clothing. We maul them and swing them, especially if the garments are restricting so that dressing is an unwelcome process. We can generally hold the play in hand enough so that we get their attention when it is necessary to hurry through. We take various occasions for this kind of rough-housing with the children, for we believe that they gain in poise if they become accustomed to such play. There is an element of good sportsmanship in it which makes them, when they are older, take hard knocks in various games with a better will. Furthermore, most

children enjoy play of this sort intensely, and get a valuable muscle sense satisfaction from it. It seems to us wholesome for children to get accustomed to rough handling, for the child who feels that he is not to be touched or even approached in an informal way has much discomfort in store for him.

d. *Ability in use of the stairs and apparatus.*—When we opened the Nursery School in 1919 we had gates fixed at the head of our stairs. Before many weeks had passed these gates were never closed, and since then our stairs have been unprotected. We find the stairs a real adventure for the younger children, and though they have occasional falls, as a general rule they learn caution and get more freedom than they lose. We begin walking the children down as soon as they get their legs, and encourage them to hold on by the banisters whenever they go down accompanied by an adult.

We have put no limit on their climbing. This means that they require constant supervision, for we feel that it would be disastrous to let them get the experience of a serious fall, which might set up inhibitions and fears. We

WE PUT NO LIMIT ON THEIR CLIMBING

try to insure them safety in their experiments with the apparatus. We find as a matter of fact that it takes very little encouragement to send children back at once to a piece of apparatus from which they have taken a tumble. When they are engaged in an experiment pretty sure to result in a slight fall, we make a game of it, chanting something appropriate, like, "Tippity top, there goes Michael; Tippity-top, there goes Jimmie," etc., to the tune of "One little, two little, three little Indians," and so prepare them for falling and making light of it.

We try to urge the older children to take care of themselves in any situation, that is, to jump, to climb on the boxes and to go up and down the ladder without an appeal for adult help. On the other hand, we do not refuse to give it in most instances, even after a child has done his stunt alone. We think there is little danger of our children becoming passive and dependent, and we know so little of the reasons for appeals that unless they persist and unless a bad habit seems likely to result, we pay little attention to them. We make suggestions to the children as to methods; for instance, telling a child to get a box if he has asked for help in climbing, and we always try to make him do his share if play material is to be changed or carried to a different part of the yard at his direction. Our general attitude, however, is one of expectation that each child will work with the material as he likes and that he will devise ways to reach desired ends.

We make changes in the arrangement of outdoor apparatus in order to stimulate the children to activities, if, as sometimes happens, they seem to be going stale. I do not mean that we demand from them incessant use of the pieces of play material, but that we have found that they go to old things with fresh joy if new combinations or varied positions are made.

2. Social Control.—Our method with regard to social contacts differs with the individual, though in general we proceed much as we do with the materials, giving the child an opportunity to experiment and watching in order to avoid disastrous consequences. For instance, we let the children's interference with each other go on to a certain degree, but our general effort is to turn a vicious attack into a friendly one. In other words, we encourage the children to settle their own troubles, but we interfere if strain seems resulting. We try to avoid the thing which is done so constantly in families, making the older child give up his plans for play or his actual play material to the younger one. On the other hand, we do make a very definite effort to smooth the way for a child socially. We do this because assembling children at this age is such an unusual social procedure that it may well demand of them an emotional strain which will prove too taxing. We try to give the individual an opportunity to carry on his activities without reference to the group, unless they are distinctly anti-social, believing that a gradual evolution of co-operative play will

follow as the social adjustment comes. In individual instances we deliberately let a child suffer from the results of an anti-social impulse. There are certain Nursery rules necessitated by circumstances, the justice of which is obvious or becomes so, even to the babies: "All the toys belong to everyone," but as long as a child has one it is his. When an individual leaves a toy anyone else may take it. "Take turns and don't push" on slide or on top of boxes or on the spring board. These are examples, and before the end of the year the children have made them their own even to the extent of quoting them against us when we have not understood a situation, or if they wish to convince us against our judgment that their cause is just.

We try to avoid giving the children the feeling of dependence upon us. In most cases there is little impulse to come to us for any but social reasons, in order that we may share their interests. It is not a part of our program to join in the play of the children in the yard or playroom except in a game like ball, or on a piece of apparatus that demands constant supervision. Occasionally we vary our procedure in order to introduce them to new material or to new uses of old.

We have had only one child with whom it was necessary to set up positive corrective measures. We had to teach him to play and to thrust him out among the children and persuade him to make contacts with them.

3. Associative Memory.—*Ability to bring past experience to bear on a new situation.*

Our aim under this head is to indicate development and the definite usable information that a child has on various subjects. We want to show instances of a definite looking back and making judgments, or of showing foresight in avoiding the repetition of a disagreeable experience. Discriminating reactions and ideas of relationships are very clearly shown even with little children, and our children differ in the degree to which this ability is developed. The question of maturity enters into the reckoning so much that our records are not easy to evaluate, and it is difficult to define our procedure. We try to make the children see the significance of events as they occur, by their own share in the occurrence. When they are balked by a piece of apparatus, we try to persuade them to investigate instead of tugging or screaming. We call their attention to the relationship of things in which they are interested, we watch for the first signs of experimenting, we do not avert disasters if the results are not too severe and are illuminating to the victims, and we help the children put through a plan to something like a successful finish. We call their attention to the simple phenomena of their small world, and encourage them to observe through all their senses and by the social attitude which is developing, to talk with us about their observations.

4. Use of Language.—*As a social tool, as play material.*

I have already described what we include under this head. We try from

the first to converse with the children as rational human beings. Anything to which we expect a direct response either by words or acts we make clear and simple. We try to put our requests into ordinary words and to give reasons for restrictions which we put up to them. We mean to give our directions and our responses to them in simple, short, clear-cut phrases, repeating them till they get over. I do not mean by this that we rationalize over every process that we are carrying out with the children. We have come to feel strongly as we have watched our children, and have seen the results of the various kinds of treatment that their various homes have given, that detailed explanations about the simpler "musts" of life are mistakes in that, in the last analysis, a child has no choice. He *is* put to bed, he *is* washed and dressed, and his best efforts to take part in the discussion that a well-meaning, reasonable grown-up initiates, result only in deferring the act at the expense of time and temper. We try not to seize and hurry a youngster head on for larger exploits, but we do not give opportunity for argument. We do not put upon a child responsibility for choice in these details.

We try to encourage conversation. We respond to the first monosyllables by giving back something which is in the nature of social give and take. We talk about situations as they arise, and ask the children questions so that they will voice their thoughts. We try never to show amusement at their attempts, but to take them seriously and give them time. On the other hand, we try not to talk down to them, nor to simplify our general conversation. As a rule, simplifying language means robbing it of all its spontaneity and reducing it to generalizations. We try to take into consideration in our conversation with the children the fact that their interests and their reactions are in sense and motor terms. We try to adopt for current use and give back to them rhythmic phrases or expressions that they invent. We also use devices, sing-song phrases or actual songs to call the children's attention to certain processes, as already cited, and we introduce into our speech reiterated refrains, associations of certain words with certain activities which seem to be pleasurable.* "Down, down, down, down," "Cloppety, clop, goes Old Dan," "Climb up the slide; slide-down," etc. Children differ very much in the way they attend and enjoy these patterns and use and adapt them.

We use no baby talk, of course, and we pay no attention to it except to pronounce all words correctly if we repeat a child's remark. We have had children in our group, however, whose speech was not normally developed for their age. We have given special emphasis to enunciation with these children, calling their attention to the sounds of words, giving the syllables their full value, and asking them to imitate the position of our lips, tongue, etc. We believe that even definite speech training must be done as play and in the course

* Mitchell, Lucy Sprague: *Here and Now Story-Book*, E. P. Dutton, 1921.

of normal activities, and our very inadequate experiments have accompanied ordinary conversation at times when we are carrying on the feeding or dressing processes which bring us into close contact with the individual children.

As we subject our notes to closer and more critical examination our procedure improves, we cover the topics we have chosen more adequately. We are still convinced that for current use, for following the group and checking up on our own methods, the diary is essential, and will be more valuable as we become more skilled.

For the purposes of research we need to make sure that we have full and consistent records of the activities of each individual over a fixed and regular period. We are now taking such a record for one full day each month. In the course of a year we ought to have in these records a progressive series of pictures of each child's interests and responses. Whether or not we shall accumulate valuable and reliable data in this way remains to be seen. It will at least point the way toward the type of record we need.

SWING, SWING!

EXCERPTS FROM THE RECORDS

In taking excerpts from our records I have tried to choose citations that would illustrate, first, the use children make of our play material, the muscular power, bodily control, which they acquire and the part adults play in the situation; second, those that would show the sort of social contacts that are made by the children, how such an activity as dramatic play develops, and again, adult sharing or intervention; third and fourth, the way children learn to use their experiences and the part language plays in intensifying those experiences and in building up relationships.

It is impossible entirely to segregate the topics so that each record illustrates but one, but we hope that they will help complete the picture of the environment and the program.

ACTIVITIES: OUT OF DOORS.

Spring Board, Packing Boxes.

January, 1921.—Spring board, 12 feet long by 1 foot wide very popular in any situation. Edward (2 years, 9 months), Jane and Arnold (each 2 years, 11 months), ran down it from the packing box, 31½ inches high, a big stunt because of the springiness of the board. Michael (19 months), started up it once alone, and with hand held by adult finished performance. As I was changing position of packing boxes one morning I laid the plank over on a long box, 14 inches high, leaving one end out about three or four feet. Arnold climbed up and began walking on the plank out into space. I went to hold the free end and he began objecting and saying something which I could not understand. (See "Language" for statement of his difficulties.) I thought he wanted something placed under the free end of the plank so I moved up three-steps. This further annoyed him. He gesticulated wildly and I finally moved everything out of the way which was what he desired. He then set off walking toward the free end of the plank. I offered him my hand which he refused. He held his body ready for the thump which he seemed to be anticipating and when the board finally tipped down he was ready for it and made the rest of the descent with a broad smile. It seemed amazing that he understood just what the board would do and was able to hold his body in equilibrium so skilfully. Later I made a small see-saw by putting the plank across the low slide support, about 15 inches high, so that both ends were free. George (2 years, 7 months), and Arnold got on. George laughed loudly when the board flew up with Arnold's weight. Arnold was not content with a commonplace see-saw game but got off to let the board fly up, climbed on the lower half and started off, creeping toward the elevated end waiting for the board to tip. It did not begin to tip as soon as he expected. He looked toward me. I said, "Crawl up nearer the end and it will go down." This he did immediately.

October 17-24, 1921.—One morning the children found a packing box standing open side up. Richard (2 years, 3 months), asked to get in. He was lifted and then three-steps were put up against the side of the box. Richard immediately made signs to get out but could not pull himself up. Two yard blocks were put in upon which he stood and promptly climbed out. He then climbed in again. Jimmie (2 years, 2 months), later climbed in and out though with less facility in handling his body.

HE HELD HIS BODY READY FOR THE THUMP

Moya (21 months), has ventured to walk across the plank from one box to the other (about 30 inches high). Loud squeals accompany her progress but she seems very sure and shows no reluctance. Enjoys being jumped down. Repeated four times on one occasion. Jimmie and Richard climbed to opposite ends and bounced with great vigor, standing. Jimmie's side of the board extended back over his box and he did not venture out beyond. Richard stood well away from his box and kept a skilfull balance. Neither child would walk across at adult suggestion though both can do it. Michael (2 years, 3 months), crawled over on his hands and knees. Later Jimmie. David (19 months), Michael, Richard and Sonia (19 months), walked across plank from packing box to box.

HAMMER, NAILS.

October 24-31, 1921.—David (1 year, 7 months), and Jimmie (2 years, 2 months), are entranced with hammers. I set seven nails in a thick board and gave Jimmie the hammer. He held it near the head and struck well, generally hitting the heads. We chanted, "Bang it on the head." He drove them all in to the head, then I showed him

AFTER THE THUMP—FINISHING THE DESCENT

how to draw them out. He tried to pull the hammer toward him. I placed the claws under the nail so that if he pushed up on the hammer handle the nails would come up. He was soon able to claw them all out. David set them again in the same holes with his fingers and Jimmie again pounded them in. We then gave hammer to David who pounded well, hammer held close to head. He has used one at home.

November 21-28, 1921.—Jimmie climbed the shelves and got a hammer. Asked for nails and finished driving them in after the head had been set for him. Used claw end with no hesitation. He chose old holes when pounding nails in but pounded well, varying direction of stroke if nail did not go in straight. Left work after he had driven in about a dozen one inch nails. Jimmie holds hammer at narrowest place and drives well and strongly. David (1 year, 8 months), sets his own nails, does not use ready-made holes, usually does not drive them all the way in and refuses to attempt it till coerced. Tries to claw them out but this is too difficult for him. He holds hammer at its narrowest portion. First pounds are straight but most of the nails are at an angle before he leaves them. For the fifteen or twenty minutes that Jimmie and David were pounding Michael (2 years, 3 months), did not achieve a single nail. No interest in process though he objected if anyone took his board or nails.

March 13-20, 1922.—David (2 years), pounding one forenoon. David set nails anywhere in board, not necessarily in holes or cracks. He gave a strong bang to set nail then drove it in to the head with strong strokes. Held hammer close to its head. He pulls nails out by worrying them with the claw end. Has not yet the trick of pushing back the handle. The following day he lay on his tummy and drove into a very small piece of wood. Was very careful to get hand out of the way before he struck. Tried to straighten a bent nail. Struck it gently at side. On another day David very deliberately went to work to fill up a crack between the bottom and sides of a wooden box. Hammered in at least two dozen nails side by side, little or no real effort or strength needed. Very proud of his achievement.

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CLIMBING TO THE TOP OF THE SKYLIGHT

SKYLIGHT.

October 24-Nov. 1st, 1921.—Laddie (21 months), climbed up on skylight, stood on top which is sloping, 27 inches high, and balanced, holding arms up, then climbed down on the other side.

November 28-Dec. 5, 1921.—Moya (1 year, 11 months), ran off from a ball game to climb on skylight. After a futile pull she got down, went off to the shelter, got one of the small benches and came staggering out. She put it down and spent some seconds arranging it to her satisfaction at side of skylight. Then she climbed up. Sonia (1 year, 9 months), in the meantime was attempting it from opposite side standing on a yard block. Both got up on it but at this time neither could stand erect on it.

March 27-Apr. 3, 1922.—Michael (2 years, 9 months), is very fond of climbing to the top of the skylight and standing poised. On one afternoon Sonia (2 years, 1 month), followed his example, repeating the stunt with no apparent difficulty. She sprang out to meet me as I held my arms out.

ACTIVITIES: INDOORS.

BLOCKS.

November 8-15, 1921.—An impulse toward a constructive use of the blocks seems to have started. On Wednesday Richard (2 years, 4 months), built a "train," four bricks laid end to end, and pushed it about singing "chu, chu." C. R., a teacher, joined in the singing and his interest and pleasure were marked. He bumped his train against the leg of a chair and it was suggested that he use chair for a tunnel. He fell in cordially and pushed back and forth till he discovered the possibilities of running the train under the door into the room where one of the children was asleep. To

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AND STANDING POISED

divert him a bridge was built, several brick blocks on edge in two lines, roofed with double unit blocks. His interest in pushing blocks under held altogether for more than 35 minutes. Some of the other children were attracted but no one persisted in the play as long as Richard. Michael (also 2 years, 4 months), built a train like Richard's but played with it only a few moments. Laddie (21 months), made a large pile of blocks, large and small bricks and triangles. His use of them reminded us that he rarely does his feat of pulling all of them off the shelves as he did quite persistently at first. David (20 months), also piled up several only to knock them down again. Moya (23 months), joined in the building group with delight but after a very minor achievement went to Richard offering him her quota, which he used to top his bridge. She returned to building later and after she had piled up a few blocks she came to call my attention to them. She used five in her first pile and seven in the second, topped by large triangles. Each time she would run smiling to me, putting her arms about my neck, squeeze with her face pressed against me, then run back to building.

November 29-December 6, 1921.—In the afternoon Laddie was found absorbed with the cubes, one red and one purple set side by side, one yellow and one purple near it. Rearranged them in line on the window ledge where he pushed them about. As he pushed he chanted monotonously. It suggested the Chu, Chu of the older children. Repeatedly went back to the cubes, placing them in different "designs" and crowing each time he achieved a new pattern.

December 26-January 2, 1922.—Sonia (22 months), took the pink blocks. The first time she made an unfortunate attack, leaving the large blocks till the last. They were placed irregularly too and fell with a gratifying bang when she laid the last and

largest. She tried again and began with a large one. No actual but approximate discrimination and a very good tower as a result. She started the third with one of the small ones, laid a fairly large one on it, then a tiny one with larger ones on that. Joyfully demolished as soon as it was done. Deserted after fourth one was built.

January 9-16, 1922.—Michael began his building with a "tower," actually a line of blocks, running north and south. Moya (2 years), joined in and twice she brought up a block, saying, "Ee, ee, ee?" as she prepared to lay it. Michael said "Yes" both times, laid his east and west with a four-brick-high tower on the second block. After Michael had laid ten blocks he began pushing it like a train. Deserted it to build a real tower on the edge of the chest. Made it four bricks high, each block set on end. As it fell he rebuilt it five times before deserting it. On another day Jimmie laid all his blocks on end and as he chose units of varying heights and placed them close against each other the effect was very suggestive of the New York sky line. It followed an irregular course and contained 40 blocks in all. The line was interrupted by a tower, a charming decorative structure.

January 16-23, 1922.—Michael built a structure which he called a boat. He and Jimmie now open the chest on their arrival. Jimmie lays long lines always, usually with a more or less pretentious tower somewhere on the line. On one occasion when Michael joined him he laid a second story along the line, all sorts of blocks laid flat. Midway the tower rose on a big cube. Michael added to it and topped it by a triangle. At the base of the tower a third story of two bricks was added. They took posts out of chest but discarded them, seeing no possibilities in them. There was about 20 minutes of consecutive building. Outside the long line they put up four bricks on edge close together. This is also a usual "remark." Michael chanted all the time a charming and varied phrase.

April 24-May 1, 1922.—Michael went downstairs to play by himself one forenoon. The blocks were suggested to him and he said he would build a boat. He built with absorption till one structure was finished. A post in the middle he called a smoke stack. A second attempt was named the train to Atlantic Highlands, and the third was a light house. Very excellent and fine adjustments to set the small blocks, narrow end down on the third. He commented, "See the train turning round and going to the country?" "This is the water," indicating space about lighthouse.

May 22-29, 1922.—Jimmie went to the closet and got out the Montessori brown stair. I had previously suggested it to him as a diversion from teasing and he had then refused. Returned to it later, and placed the blocks, tower fashion as far as he could reach. Got a small chair and placed two more. He was asked as he reached vainly with another, "What are you going to do now?" Jimmie: "Get a bigger chair," bringing a grown-up chair. Placed two more, leaving only the smallest. Was asked again what he could do and he replied, looking about vaguely, "A bench." I then said, "Look about and see if you can find something higher." Almost at once his eye roved over the room, he ran to a small high table, and he pushed it over saying, "Is this what you meant?" Moya and he had a controversy about the last block which she had appropriated, but when she understood what he wanted it for she was appreciative and gave it up saying, "I not going to knock down Jimmie's tower."

Bobbie (2 years, 2 months) entered and ran to it with a gleam in his eye, but we were able to get his attention and, after we had explained that Jimmie had built the tower and we were all letting it stand, he kept away. It stood unmolested through the afternoon during getting up from naps and music. Everyone except Joan (17 months) and Mollie (18 months) appears to realize the sanctity of a building.

INDOOR SLIDE, BALCONY, STAIRS.

November 7-14, 1921.—The indoor slide was brought into requisition this week though the light pipe railing has not yet been put on the steps, so we had to supervise very carefully. It consists of a platform in two heights, the upper 2 feet, 6 inches wide, 6 feet, 2 inches long and 6 feet, 4 inches from the floor, with a step down to

another 5 feet, 5 inches square and 5 feet 5 inches from the floor. The slide is 9 feet, 9 inches long and 14 inches wide.

The stairway measures 6 feet 7 inches, and the treads are 9½ inches apart. We rest the end of the slide on the gym mat to make the landing easier, for the momentum is really great and a child is likely to lose his balance and roll over at the foot.

Richard (2 years, 4 months), went down at once with no real hesitation, though he went through the business of "falling" as he had done before out of doors, calling "help me" with great relish. We did not go to his assistance but laughed at him and with him for he seemed to appreciate his joke.

David (1 year, 8 months), turned a complete somersault at the foot the first time down. He does not lose control on the descent but sits with a straight back. He was entirely undisturbed by the sudden overturning and went down repeatedly. He shows less excitement over it than Michael and Laddie (2 years, 4 months and 1 year, 9 months), who are fairly lyric over the experience. They show eagerness and excitement not only over the climb but over the sensation of being high. They trot about on the platform, climbing up to the higher level, laughing and shouting and holding their arms raised and their heads thrown back.

Moya (1 year, 10 months), went up the steps but did not venture a descent. Insisted upon backing down the stairs.

Jimmie (2 years, 3 months), could at first be urged to it if we stood near and assured him that we would catch him. Once he went down alone but thereafter shied at it and gradually came to a refusal to descend. Before the end of the week he had devised a method of grading the descent. We had pushed the settle table under the slide. (See cut page 20.) He climbed on it which brought him about half way down the slide and from this height he ventured to descend.

November 14-21, 1921.—The settle was left under the slide all the week. One of

POUND, POUND, WITH MY HAMMER POUND!

the three older children pushed an adult chair against it, climbed up, as Jimmie had done and slid. Richard, Jimmie and Michael did this over and over. Jimmie found this a feat scaled to his courage. Once he slid on Michael but after a few tears serenity was restored and as a result the children began to get the idea of watching out to see if anyone was in the way.

The next day Moya devised a way of using the slide. Standing at the side she stretched her arms across, climbed up and slid down, only two feet or so. A big chair was placed for her against the slide but she removed it at once. Laddie pushed it against the table, climbed up and went down from the half-way station as the Olders had done. The climb over the back of the chair was almost more than Moya could accomplish but she persisted, reaching over the slide to grasp the sides and went down successfully.

November 21-28, 1921.—Popularity of this piece of apparatus remains constant. The children are not as excited about it as they were and the first ecstatic thrill over the height seems less manifest. All except Jane (1 year, 5 months), and Moya have now had the self-initiated experience of a descent from the top. Moya goes up the steps rather less since she has found a way of going down from the table.

Moya and Jimmie sliding from the half-way station, a chair at either end of the table. (See cut page 20.) Jimmie ventured a new method and slid sitting three times while Moya was climbing into the chair and getting ready. She began her usual squawk of protest. We are trying to give her an appropriate remark for a substitute. This time I said, "Jimmie's turn," and as Moya slid she called "Moya, turn." One afternoon she pushed up the chair herself so that she could slide.

After some practice with the half-way station Jimmie experimented with a slide from the top when he was in the room all alone. He raised his arms as he started, opened his eyes very wide, sat very straight and zipped down. Went down four times.

Sonia (1 year, 8 months), went to the foot of the slide as Moya climbed on the chair, but regarding Moya, followed her up on the table and down. She was very careless about her off leg, letting it trail so that we had to be on hand to load it on the slide. At first she did not know how to stretch her arms across to seize further edge of slide, but after I had put her arms across three times she voluntarily adopted that method, though she continued to trail her leg. This was on Monday. On Wednesday she was entirely self sufficient, handling herself adequately as to arms and legs.

Tuesday she climbed the stairs, which she had not done before, went to top of slide and instead of sitting down like a cautious child, she stepped on the slope which of course threw her and she whizzed down. The track held her but it was a disconcerting experience for the adults. We had to watch her at the steps, too, because she tended to slip through and we feared she might fall between the rail and the platform at the top. She is so debonair about it and so mischievous that it adds to our concern. After reaching the platform she dashes for the slide so the adult has to dash too in readiness for her plunge. She refused at first to accede to our demand that she sit before going down but on the second day she did slip down to sitting position at the top of the slide. Shows no reluctance or aversion to the sudden descent as Jimmie did. She is insecure on her feet and not at all cautious. She is the only child who has fallen on the step from lower to upper level of the platform. She walked off twice.

November 28-December 5, 1921.—Sonia has little control of her body though she hangs on well if she slips on the stairs. We do not yet let her slide from the top without breaking the force of the descent for she sways and tips as she goes and rolls over at the bottom even without our help. Jane also is sliding this week. Jane often lies on her back and Sonia sways and swings like a train on a curve but so far they have both kept on the rails.

December 12-19, 1921.—There was great activity on the slide on a rainy morning. Michael, Jimmie, Jane and David followed one another up and over rapidly and with an excellent appreciation of taking turns. A call for a child to wait for some one else to go up or down would bring instant response. David varied his method by climbing on the block chest and under the railing to the steps. Michael has taken up

EXPERIMENTATION IS SIMPLE BUT NO LESS REAL

sliding feet first on his stomach as has also David. Sonia added a new element of risk by placing a small high-backed chair in front of the steps and climbing over it to the stairs. Jimmie is going down from the top quite fearlessly though he does not always choose this route. He goes on his stomach, feet first.

January 30-February 5, 1922.—Moya went up stairs and down slide sitting for first time this week. Also went lying on stomach, feet first.

April 17-24, 1922.—Bobbie (entered March 1st, 2 years), ventured down the slide this week. He sat and I held him so that he went slowly. He has not gone down alone and we do not encourage it.

April 24-May 1st, 1922.—Bobbie now goes down out-door and indoor slides, sitting, with no help or restraint.

Mollie (entered March 13th, 17 months), adventured the indoor slide on the afternoon of April 26th. She climbed to the platform and was helped down. Later she went up again. At the top of the slide she attempted to go down as Sonia did, by stepping off into space. I repeated over and over "No, no, sit down, Mollie Anne." She followed directions, sitting and then "hitching" forward to go over the edge. Up and down again eight times. Then we elevated steps to keep her away as we could no longer watch her. On the afternoon of the 28th I tried to teach her to lie down and go down on her stomach as being a less dangerous method. We have not dared

A FIRST PASSAGE

let her coast alone because of the danger of her bouncing off. Also she shows the excitement of the descent by fully dilated pupils. Once I went up on the platform and turned her over and over and once I indicated by my pokes and gestures what was desired. After that I said each time, "Lie down and turn over, Mollie Anne," and each time she complied. It is not yet her habit so we have to remind her each time.

SELF HELP IN PRACTICAL MATTERS.

AT MEALS.

November, 1920.—Michael (17 months), shows interest in feeding himself, but still has considerable lack of understanding of the process and also of the muscular control necessary. We frequently allow experimentation with a few spoonfuls which are inserted in his mouth upside down. He still does not close his mouth after taking a sip of milk from a cup and so we are still spooning his liquids. Has a few very decided dislikes—rice, spinach. At first would take these articles when pressed, but lately has fought hard, spitting out the offending articles and including the rest of the meal in his displeasure. We are going to try isolating the rice and spinach and giving them after the rest of the meal has been taken.

December, 1920.—Has entirely adjusted to novelties in diet, even rice and spinach which he did not like at first. Except when he has colds, eats with good appetite. Has occasionally used spoon himself for a teaspoon or so, and feeds self dessert fairly well. Is learning not to put spoon in mouth on edge. As a whole, however, except for rare occasions, does not feed himself nor has he yet learned to drink from a cup though we offer him the cup at each feeding. Still holds mouth open.

January, 1921.—Has been drinking from a cup which he holds alone. Is feeding himself dessert.

February, 1921.—Fed himself and drank milk with very little help on every day but one, when he was fed most of dinner.

PRACTICE

EXPERIENCE

March, 1921.—His appetite has not been keen and his interest in food has been less as our records stand. Absent from 21st through 25th with German measles. Just before that we noted less interest in feeding himself and during the last week he has done very little himself. Ate entire dinner, if fed.

April, 1921.—Up to the last week of April the lack of interest in food noted in March was very apparent. He stalled, refused to feed himself and was cross if urged. We removed him from the table twice with no effect. On April 20th he was forced to take up his cup of milk, that is, his hand was held on the cup while he drank. He cried and resisted at first, but succumbed and fed himself a good part of every meal. From then on to the end of the month he showed improvement.

In Getting Play Material.

November 29-December 6, 1921.—Jimmie (2 years, 4 months), and Richard (2 years, 5 months), are quite fond of climbing up the shelves in the cupboard where toys are kept, in order to get what they want. Jimmie got up on the third shelf, took some tin dishes in one hand and could not get down. He called for help. C. R. took the dishes and showed him how to bring one hand down to the shelf below. It took just one direction for him to get the idea and to apply it, coming down quite safely. Later he climbed up and got out two dumbbells. He clung there for a second or so but did not call and after a space laid his bells on a lower shelf and got down as he had been directed, lowering the bells shelf by shelf.

In the roof shelter he also climbs for the hammer and has hung, calling us to help him down. He has been put through the process of lowering himself and his trophies, and now he scrambles down without demur.

January 9-16, 1922.—Moya pulled up a chair to the left door of the cupboard, the door which does not open, and pulled at the latch till it was loosened, then got down, opened the door, and got a doll, her declared desire.

January 16-23, 1922.—Michael opened door from hall into shelter not previously opened by him or others. Sonia (23 months), put chair against right side of closet door, unlatched door, pushed chair back and opened door.

In Dressing.

January 9-16, 1922.— Moya (2 years), unlaced her shoes and pulled them off after they had been untied and loosened at the heel for her. She pulled off her stockings after they had been pushed down. Took off waist and drawers. Very sure and deft.

Jimmie (2 years, 5 months), unlaces and takes off his shoes and makes a stab at buttons though his method is to pull the two parts of a garment apart. Pulls off his stockings.

Michael (2 years, 6 months), is oblivious to dressing and undressing unless his attention is forcibly called to the business in hand. He can unbutton his gaiters because the buttons and buttonholes part company at a touch. He has seemed interested in trying to unbutton his coat and with help does quite a good job. He pulls off his shoes and stockings.

January 16-23, 1922.—Moya (2 years), wipes off drops of milk on table or her own face with great nicety, taking a corner or small portion of the bib and hitting the spot. Very careful to wipe face often. On the 17th she unfastened her garters and took off stockings and drawers with waist attached with no help except on buttons. She pushed her stockings down about her ankles and then pulled them off by the toes. Put on stockings and shoes with help. Has put on stockings alone. Reached for them and put them on with no suggestion, then took shoes and called for help.

She reached behind her in bathroom, pulled up the chamber and sat down. No suggestion.

At suggestion Michael took off his shoes, laces untied, then his stockings, (instructed to pull heel first, then toe) and then put up his arms to be de-sweatered and bloused. Later when told to climb up on the bath tub cover alone he pushed up small toilet seat and did so. Climbed down when asked.

March 20-27, 1922.—Jane (1 year, 9 months), got down her basket, as we began dressing children one P. M. It tipped over and she brought the leggings to us. Did the same the night before when taxi was announced, except that she toted basket to an adult.

April 10-14, 1922.—Sonia (2 years, 1 month), opened door from hall to shelter. Jimmie (2 years, 8 months), and Richard (2 years, 9 months), also do it.

SOCIAL AND EMOTIONAL CONTROL.

Accepting the Rules of the Game.

Arnold is adjusting to the requirement that he share the horses. As the new ones are brought in he lays claim to each for the day, but yields to the rule and does not insist. Arnold's appeals for help distinguish his technique from that of the others. As yet he calls for help from adults only, and usually resents help from children. On October 21st, in attempting to get the horses into the rabbit hutch, it was necessary to turn the heads of the animals after they were partly in. Arnold was very irritated at his failure and called for help. He was not willing to be shown how to do the work, nor to do a part of it himself, and repeatedly cast himself on the ground, growled and threw pebbles at H. J. who had gone to his help. Each time the difficulty arose as he was putting the three horses in, he finally yielded and helped. When he took them out he went through the same performance.

Adjustment to Parent's Departure.

October 24—November 1, 1921.—Richard continues extravagant attacks of woe at mother's departure. He spends himself at these times and is quite inactive after them.

November 7-14, 1921.—C. R. has been calling for Richard at his home all the week. She reports: He comes to me from whoever brings him down stairs with the happiest smile. He talks on his way to school of going to see John, Michael and the rest. He says at intervals, "Munnie gone to work. We're going to work," but otherwise there is no sign of disturbance.

November 14-21, 1921.—C. R. is still bringing Richard to school, and he seems quite happy about coming to us. On Friday his mother brought him and he began the usual tantrum as she deposited him in the Nursery. I took him up and told him he must stop. He gulped down a roar and then allowed me to divert him by asking him to put away a patty-pan which he had borrowed the night before. We then went up to the roof in great content.

January 16-23, 1922.—Richard returned on Monday after a long absence. He greeted us cheerfully. Held out his hand to show his mittens. Mother left us and he went up on roof smiling. Stayed there in entire content. His mother came up once or twice during the day. He ran to her and asked her to stay, but made no demur when she actually went. He was very affectionate. Stood backed up against V. M. C. watching her feed Moya. Asked to sit in my lap and tended to slow up in activities and give attention to adults.

Adjustment to Details of Nursery Program.

November 14-21, 1921.—Again Richard remonstrated over the weighing. (Daily record shows that weighing has been up to this time the signal for tears.) He filled the air with his wails calling upon the absent "Munnie" and "Nene," and writhing so that it was quite impossible to get correct weight. Rather than force the issue I took him in my arms and we were weighed together. He made no objection and recovered cheerfulness at once.

December 5-12, 1921.—Richard began to cry as soon as weighing preparations began and we started to undress him. We reassured him and explained that it wasn't going-to-bed time, but he persisted in his crying. Then I said if he cried it was because he was sick and that he would have to be put to bed. This also was unavail-

ing and he began to scream and kick. H. J. picked him up then and removed him to the bathroom. As she undressed him in spite of his struggles she kept saying that he was going to be a fine big boy and that he didn't cry when he was weighed. When his clothes were off she took him up in her arms, put her head down to his and said something to the effect that he was a dear little Richard and a fine boy and that we were going into the other room to get weighed. As soon as she took him up he put his arms about her neck and nestled up to her, more responsive than often in this way. He had stopped crying and there was a little general conversation. As soon as she had assured him that he was going in without crying she took him in. He stood on the scales with no outcry and all alone.

THE PROGRESSIVE ADJUSTMENT OF AN UNUSUALLY RESERVED AND SHY CHILD.

From Record of November 15, 1920: George, a new child (2 years 4 months), entered today. He has been a week to the Little People's Home School. Mother says the association with other children has helped his shyness, which was very marked. He shows it even with her, if she asks for any social demonstration like shaking hands and saying goodbye when he leaves her. His interest in the play material gradually overcame his reluctance, so that he used shovel and pail and dragged a cart about before the end of the first day.

November 21.—George welcomed his mother when she came to visit. Was not excited and "introduced" her to each child. He called her and put each child's hand in hers, grunting something in explanation as he did so. He went the rounds in this fashion while children were having lunch at 10:30. In a music period during the same week he entered into active uproarious relation with the others. He and Jane crawled gleefully around the block chest, and he was heard to laugh loudly more than once. Seemed more at home the last two days of his second week.

November 22-29.—George followed me up on porch where I was working with paper and rule. "Wha doon?" he inquired. Threw himself across my lap, over my paper. Laughed and seized rule and tried to run off with it. I took it and attempted to rule the paper. George reached around me, grabbing at rule in great glee. Followed me to yard, where he seized rule again and beat me joyously. We are glad to see this easy familiarity.

December, 1920.—George makes relatively few contacts with other children, but seems to enjoy being with them if they do not approach him intimately. Objects even to friendly demonstrations. Joins children, however, more frequently than before. Is rather dependent upon adults. Tends to become less active when alone with the children, sometimes standing by the window or door waiting for adults to return to the yard.

January, 1921.—George and Jane attempted a co-operative play of loading one of the big wagons. Jane finally mounted the horse which they had put on top of their load, and George dragged her about the yard. He is very friendly, has joined the group very much more actively. Has begun very definite contacts, chasing the children, pulling off their caps, etc. Occasionally seems to have hard feelings, but generally is very gay about it. He has thrown himself into group activities like running and sliding almost with boisterousness and certainly with hilarity. Of course this is only a comparative statement. A good deal of his time is still spent by himself.

February, 1921.—Increasingly active and aggressive as the month progressed. He has made attacks on the babies, Michael and Richard, several times this week. It is very easy to turn his unfriendliness to affection and concern. Once he seized a chair that Richard was seated in and pulled it out from under him so that Richard got a bad fall. Reproved, he was at once contrite. He put his arms about Richard and petted him, solicitude written on his face. He gets excited in play, and we warn him if we see disaster coming. On one such time when he rushed at Michael he stopped and turned his attack into an embrace, and then went to Jimmie and then to Richard, putting his arms about them with great tenderness. One morning Arnold and George seemed to have some sort of hostile feeling, making occasion to interfere

with each other. Arnold took George's wagon. He was asked to give it up, and did so with reluctance, keeping his foot on the handle. George pushed him, and he returned it with interest, knocking George over. George yapped and bounced up again, shaking his head. Arnold, standing very close facing him, also shook his. Then Arnold bobbed his up and down. George continued to shake his. Arnold imitated, and then the humor of it struck them both and they grinned broadly in perfect good humor.

When we take George up from his nap we hold him up to look over the porch rail at the children in the yard. The first time or two he acted very shy, turning his head away if anyone noticed him. The third day and regularly thereafter he asked to be held up and called an answer to a greeting.

March, 1921.—George is probably "loosened up" enough so that he feels no more need of violent contacts. These have ceased and he is very affectionate to children and adults alike, though he can and does defend himself when affronted.

DEVELOPMENT OF DRAMATIC PLAY.

November 28-December 5, 1921.—C. R. sang "Old Dan" to children on roof. Michael (2 years, 5 months), Richard (2 years, 5 months) and Jimmie (2 years, 4 months), and got them much interested in rhythmic changes in walking and running. Michael and Jimmie felt the change between the slow and fast rhythm. They held hands and went round the roof twice, changing speed off and on. Michael tried to chant with C. R. Richard ran by himself and registered the changes well.

"Old Dan can walk, walk,
Old Dan can trot, trot, trot,
Old Dan can run, run, run, run,
Many, many, many, many miles."

We dropped out the second line, using only "walk" sung very slowly, and "run."

December 12-19, 1921.—In order to attract Jane (17 months) and Jimmie (2 years, 4 months) out of the shelter V. M. C. took a hand of each and played "Old Dan." Pretty soon Moya (2 years) came up with hand outstretched. V. M. C. told her to take hold of Jane's hand. She did so with no further direction. Soon Michael (2 years, 5 months) approached with outstretched hand and took Jimmie's hand at suggestion. Next Sonia (21 months) and last David (21 months) joined the throng. David was slower in getting the idea of taking Moya's hand, perhaps because the line had grown long and unwieldy. All the children laughed as we walked and trotted and ran together. All change tempo with the song.

April 17-24, 1922.—Michael (2 years, 9 months) very frequently does not join the group, but seeks solitude. One A. M. he took kiddie kar and set off, calling "Goodbye, John." I answered and asked where he was going. Michael: "I going far, far away." . . . Michael held his empty hand out to C. R. "Here, Carmen, take it." She accepted his gift. He said: "It's a hammer." She thanked him and pretended to drive a nail vigorously into the table. He smiled appreciatively, and said, "I want my hammer." C. R. gave it to him and he pounded a nail. Then, with appropriate action, said, "I throw my hammer away."

April 24-May 1, 1922.—Richard (2 years, 10 months), sitting in packing box. Hat fell off. C. R. said, "Come over here and let me put it on." Richard: "But the car is going. How can I get out?" C. R.: "Ask the conductor to stop a moment." Richard: "Will he wait?" C. R.: "I think so." Richard (turning to address the interior of the box): "Stop the car, Mr. Man. I have to put my hat on." Later he said he was going to visit Dr. Lincoln. Invited Jimmie to go along. Said "But first we must telephone to find if she's at home." Again said, "Jimmie and I are playing. Jimmie is the father and I am the little mother." Apparently they did nothing but sit in the packing-box.

December, 1920.—Edward (2 years, 7 months) tried to raise ladder against the wall alone. I helped him lift it and he landed it upright, flat against the wall. I held it so that it would not fall and he began to climb. I let his weight tip it slightly. He instantly pulled out the lower end of the ladder, and began again to climb. Experiments of this sort repeated again and again are laying the foundation for the process we call reasoning, whether or not we accept the behaviorists' definition of reasoning as the organization and co-operation of habits.

March 13-20, 1922.—A good deal of play this week with *wagons, kiddie kars* and *wheelbarrows*. Our equipment has been enriched by a new wagon, a low light though well-constructed cart with a hook on the shaft, making it possible to couple it with other vehicles. It runs more easily than anything we have and is lighter. One morning early in the week Michael (2 years, 8 months) had the cart, and David (1 year, 1 month) wanted it. David went to the old express wagon, patted it, and called "Cart, cart," at Michael. Ran after Michael, an arm extended toward the coveted novelty, calling again "Cart," and pointing back at the old wagon. Michael was shown the new cart hitched to a kiddie kar. He rode half a minute, then dismounted because David got into the wagon. After Michael had discarded the small trailer, we looked up to see David riding kiddie kar, trailer fastened on behind. David again repeated this performance.

October 10-17, 1921.—Richard (2 years, 3 months) was much interested in sounds made by thumping or throwing pebbles against iron pipe. Threw stones of varying size against it and thumped with increased or decreased vigor. He experimented with several different materials, going from one thing to another and hitting them with small sticks, then listening to the sound. While Richard was calling Jimmie's attention to the "big pipe," Jimmie appropriated the wagon. Richard made an attempt to regain it, failed, said "wheelbarry," and went off for one. Brought it to pebbles, filled it, then dumped them out.

David (20 months) discovered that the shovel would tip back. Adjusted it, slippling the catch down the handle out of the way, and went about picking at boxes and brick wall.

October 24-November 1, 1921.—As usual children are eager to shovel pebbles out on the cement. I put a board into one of the packing boxes, coal chute fashion, and shoveled some pebbles in, letting them run down the board. I called the children to put coal into the house. David and Richard shoveled for several minutes. I also diverted Richard's throwing by singing "Drop, drop, drop," etc., down the scale as I let pebbles slip through my hand one by one. Richard, seated on a packing box, was delighted and dropped to my chanting.

The pebbles and shovels made their appeal to Jane (15 months), and she spent much of her first two days there. She would take up one of the larger stones, bring it up so close to her eyes that they crossed horribly, utter a shriek of delight and then approach it to her wide open mouth. At that point adult supervision would come into play. The first word would bring a response and she soon began to pause before the act. After about six repetitions she ceased her attempt to make a meal.

December 12-19, 1921.—Jimmie has discovered a general law the application of which will make him take the slide with more assurance. He finds that he can regulate his speed by pushing his feet against the sides. When he wants to move a little he lets up on the pressure. Then he eases himself down a little further, then stops again. This is done with a very conscious, pleased expression.

January 9-16, 1922.—I was singing my old ditty, "Ha, ha, Moya; Ho, ho, Jimmie Jo," etc. Michael listened, Jimmie also, and then piped up "Many, many, many, many miles." Interval identical and rhythm also.

January 23-31, 1922.—The room was disorderly one P. M.—blocks scattered over the floor. C. R. sang "Who will help me pick up blocks?" Jimmie instantly sang back on a very similar melody "I will help you pick up blocks." Then C. R. sang "Thank you, thank you, very much," a phrase similar to the first line of London Bridge. Richard, who was walking about, took it up instantly—sang "Very much, very much, thank you, thank you, very much, my fair lady." Then he went through another verse, "Build it up with sticks and stones." Jimmie repeated "Thank you very much" in a chant over and over as we worked till all the blocks were put away.

March 20-27, 1922.—Michael building said, "Smoke's coming out there," pointing to a single block set on end. Later held it up said, "Do you see that? It's the chimney."

April 3-7, 1922.—

Jimmie: "Who put this on?" (grating over dumbwaiter shaft on roof).

H. J.: "A big man."

Jimmie: "Was it Frank?"

H. J.: "Yes or Big Jimmie."

Jimmie: "Frank had a white hat on." (Foreman of building work last Autumn wore white cap).

April 17-24, 1922.—Moya (2 years, 3 months), asked to have the sandbox opened. Was told that it was too cold, said "Have dinner, open sandbox?" It is usually opened directly after lunch.

May 1-8, 1922.—One P. M. on the roof Mollie Anne (18 months), picked up a hammer, took it over to the pipe and began beating. At the first stroke she sang "Pown" and on three successive strokes thereafter. The rhythm was excellent. Moya (2 years, 4 months), from the sandbox sang with her. C. R. started the song, "Pound, pound." Mollie kept with me for six beats, a delighted grin on her face.

"Pound, pound, with my hammer pound,
Whanging, banging, whanging, banging, whanging banging, pound."

May 8-15, 1922.—All the sweaters were hanging in the shelter window. David (2 years, 2 months), who was pulling Joan in the small wagon, caught sight of his, stopped, chuckled, pointed and said, "Boy—coat." Then named "Jimmie sweater—David coat—Laddie coat—Joan sweater—Mac sweater"—when V. M. C. pointed to each one and asked him. Hesitated long over Laddie's, looking at him, then at the coat, trying to get the name.

Sonia spied Bobby, her brother, in the school yard. She commented on it with enthusiasm. David "*I* see Bobby—*Where* Dindy," his sister.

May 15-22, 1922.—After digging for a few moments in pebbles Mollie got up and pounded on the tin ventilator pipe. Exchanged for sand shovel which makes more noise than a small shovel which she had. Beat first on tin shaft, then on iron pipe, then on end of board. Off to pick up hammer and holding it claw end down, tried to break pebbles on the curb as Olders do. The whole performance seems like a cross-section reproduction of older children's activities.

USE OF LANGUAGE.

Correction of Defect.

December 20-27, 1920.—Arnold (2 years, 10 months), calls for "Hot wapper" when injured, or when his face is being washed. One day at this request we said, "Oh Arnold, not hot wapper, hot water," enunciating very clearly and emphasizing with dramatic fervor. Arnold looked mischievous for a moment, then said, "Hot water" very distinctly, repeating it several times, amid the plaudits of grown-ups. The next day when he was being washed for dinner he made his usual demand. I pointed my finger at him and said accusingly, "Why Arnold Mitchell 'Hot wapper?'" He stopped and looked at me for a moment then said, "Hot water" with a chuckle.

March, 1921.—Arnold's speech has improved both in pronunciation and facility of expression (this report comes from home also) since we arrived at the conclusion

PROGRESS TOWARD CONSTRUCTIVE PURPOSES

COMES WITH THE ACCUMULATION OF EXPERIENCE

AND WITH ASSOCIATIONS WHICH A CHILD TAPS FOR HIS PLAY ACTIVITIES

toward the end of March that he was not hearing everything that was said, as a result of an ear infection. We have been at great pains to make ourselves clear,—bending down and speaking slowly and incisively and the consequent effect on Arnold's language has been startling. His speech is clearer and he uses words with greater confidence as though he were surer of being understood. His sentences are longer and more complicated and his whole impulse to speech stronger.

April 11-18, 1921.—While I was dressing Arnold on Monday morning, he got my attention by poking and said very distinctly, "Ford, Ford"—blowing out the initial letter with much energy. This was carried over from three weeks before. He had said "Pord" and had been corrected and shown position of lips for the F sound.

April, 1921.—Arnold's advance in language continues. He is distinctly interested in the "exercises" in pronunciation which we give him—correcting mistakes that are pretty well established. (See notes April 11-18 for illustrations). A report from home notes that he objects to Mary's using gestures—nods or shakes of head—when talking to him, and he apparently reproduces our directions to him and to Edward: "You musn't do that—you must talk." He carries on long and rather elaborate conversations, often with quite an imaginative quality and very dramatic.

January 9-16, 1922.—Michael (2 years, 6 months), is wrestling with the aspirate, which up to this time has been a negligible quantity in his vocabulary. We breathe out forcibly in pronouncing *hat* or *here* and he imitates us at once, showing evident interest in the effort. He blows out, "Huh, huh, house." "Where Michael going? In 'ere?" "Here, Michael." "Huh, here." After a conversation about ice we heard him practicing, "Hi, hi, hice"!

VOCABULARIES.

December 5-12, 1921.—David (22 months), found a pebble imbedded in ice on the roof after a snow storm. Brought it to me saying, "Ice." Put it into his mouth at once. The day before at lunch he had said that his soup was hot.

Vocabulary recorded this week:

stockings	boh (broken)
up	au (automobile)
iron	cart
hot	ice

He brought up a small tin automobile and said, "Hoo, hoo." The horn?

January 9-16, 1922.—David (23 months), vocabulary recorded this week:

More	Nanykee (Thank you)
David	I am
pocket	iron (i-en)
John	bang
'ammer—'ammer	hatty (hat)
Gone—Michael	ice
Look—look	boy
No, no, no (Jimmie interrupting him)	Uh—Moo-oo (cow)
bucky (buckle)	Engine (presenting one to adult)
That nose (pointing to nose of cow)	Aw-gawn
piano	N'aw—gawn
Nail (repeated after grown-up)	Lon' lon' (long long drink)

Calls birds on cretonne apron "Gackies" (ducks).

Pointed to eye of an adult feeding him and said, "Eye." Poked it shut, said "Aw gone" and chuckled. Very much interested in features. Eating dinner pointed to bird on V. M. C.'s apron which had been decapitated by a seam. Remarked, "Gawn" and turned the apron over, ostensibly to find the head and back again, repeating "Gawn?"

"Big Jimmie" (carpenter) took David in his arms to show him the little ventilating door in bathroom. David banged it shut with a "Boom." Later when he was being undressed in the bathroom, he continued pointing at the little door, saying "Door-boom" and laughing.

Michael standing on packing box facing out, talking to himself, "Men on the house, men on the house, men on the house."

V. M. C.: "What are they doing?"

Michael, promptly, "Fixing the pipe. I don't know how they fix it. How they fix the pipe, Mac?" Then regarding her as she stood on some planks which brought her head level with his, "Mac is a very big boy." After the storm he mounted to top of packing box which V. M. C. was clearing. She apologized for sending a fine spray of snow into his face. Michael: "I like it. I like it. Do it again." He continued to stand there chanting in his customary fashion. Impossible to catch his remarks except occasionally one refrain, "It is nice, nice, nice." A visitor came in and I stood talking to her. Michael came up and said, "Hello" cordially, then to me, "Who is that, John?" I introduced him. At my suggestion he shook hands then turned to E. B. who was standing near and said, "This is Millie."

Michael's language flows like a stream, accompanying all his activities directed to anyone who is near but not lessening apparently when he is alone. Thought and language certainly seem identical with him.

INDIVIDUAL LANGUAGE RECORD: EDWARD.

I have segregated all the notes taken on the language development of one child as an illustration of the facts we are gathering and of the possibility of tracing individual progress within group records. The degree to which the teachers' methods are recorded and changed in accord with the findings is indicated. It is here especially that our technique must be developed. We have an exacting program and we do not often enough go back and scrutinize our records to get objective evidence of the failure

or success of our methods. Oftentimes we are probably not sufficiently aware of them to get them adequately recorded.

Edward came to us with a serious speech limitation and we believe that very definite and concentrated work was needed to give him an impulse toward the acquisition of language. There was a question in his case whether there might be a permanent defect.

Edward was born on April 15th, 1918, and was two years, six months old when he came to us on October 13th, 1920. He remained till June 1st, 1921, and so spent seven months in the Nursery School.

His mother is German and his father Dutch. Both speak English with a marked foreign accent. German and English are the languages used at home chiefly, though with friends and relatives French and occasionally Dutch are spoken.

Edward gives an impression of unusual sturdiness and has stupendous physical energy and strength. Has a very sweet, merry and affectionate disposition, shows no inhibitions, is social and suggestible. This makes it easy to divert him from an undesirable activity, but difficult to develop in him a self control or self direction of which he has control. He was found to have diseased and much enlarged tonsils which were operated upon in November. Seemed to be very susceptible to colds and infections. Had an abscess and a small boil during the winter, colds and a mild attack of bronchial pneumonia. Was overweight and over height on entrance and even more so at the end of the year, in spite of his various illnesses. Out of a school year of 154 days he was present 116½, absent 37½.

OCTOBER:

No speech; no attempt at imitation of the speech of others. Voice peculiarly strained and unmusical.

Has no formulated speech and little technique for communication. He grunts and points with thumb and forefinger and gibbers remonstrance, but he shows much less persistence in his endeavor to make one understand than Arnold did before he acquired words. Edward may make his wants known better in a familiar environment, but it seems to us that the dissipation of his energies shown in his play activities is characteristic of his method of communication. He carries on long dissertations with himself and at other persons, for there is no return from adults or children, varying his tone and inflection slightly and gesticulating. At home his wants are anticipated, his parents have learned the desired responses to his calls and gestures, and he has not yet been forced by a situation to break into speech nor to feel the need of so doing. There is a peculiarity in his enunciation, as far as anything he does can be called enunciation, which suggests a defect in the speech mechanism but no defect is discoverable. There is also a curious strained note in his voice which reminds one of the voices of deaf mutes. His efforts toward speech are fearful, for he makes strange and uncanny growls, squeals and mutterings which have no suggestion of actual words. He directs these efforts toward adults and children, but they seem more generalized, less directed than his "questions." He comes to us when he wants something, points to it and grunts, and occasionally, whether accidental or not, the grunt resembles the appropriate word. His mother says that there are certain sounds which he makes or expressions which he uses to indicate certain desires or questions and that they are always the same and quite clearly spoken.

His understanding of simple directions is adequate. Since arrival he has said several words which we could understand but he has never repeated them as far as we know. These words were dirt, throw ball, no, in there, read, down.

Edward does not imitate other children, that is he does not do what they are doing as they do it, but he does still at the end of the month, leap to any activity that they initiate or seize any toy or piece of apparatus in their possession.

He makes no attempt to repeat words used to him, whether or not we try to interest him in saying them. If he is asked to say a word he often says, "Na" and shakes his head. Our method with him is to enunciate clearly, to use simple, abbre-

viated phrases and to try to get him to repeat, for instance, the name of the toy he is asking for or the article of clothing we are putting on for him. He asked one day by gestures, about the picture of a cat on one of the boxes and seemed to make an effort to say, "Pussy" after me, the only time, however, when an attempt to imitate was made.

The following illustrates his general method: He climbed into one of the packing boxes but could not get out. He emitted grunts of distress till we went to his assistance. We put a small box in for him to stand on and he climbed out with evidence of joy. Then he threw all the small boxes in, leaving himself outside with nothing to stand on. He tried to climb and we took out one of the small boxes. He instantly hurled it in again, grunted, looked about him and then seized a wheelbarrow, turned it upside down and got in. The following day he repeated the play, showing much concern when he was unable to follow the small boxes into the large one. We suggested that he find a small box to stand on but instead he took a small cart which was not high enough. Again he appealed for help with groans and yelps but paid no attention to suggestions from adults. He suddenly seized the cart and turned it over which raised it just high enough for his purpose. Radiant smiles indicated his pleasure in the accomplishment.

NOVEMBER.

Interest in speech aroused. A conception of language as communication evident. Words and short phrases attempted.

We have been trying to tempt Edward to speech and have repeated clearly the names of things he was using but he makes no attempt to imitate us. This week, (November 1-8), we have begun giving simply the initial consonant sound of words, greatly exaggerated, followed by the word. This has arrested his attention and he has made the K sound in coat, the H sound in hat, the T sound in table and various others. He is much more responsive to this method than any other so far tried.

Later in the month, (November 15-22), we record: Edward seems to have passed a stage in his language development and to be making real progress. He now tries to ejaculate words instead of what have seemed to us before only sounds. This is obvious to outsiders for Miss K. passing through our yard, caught words from him which she understood. One day he said, as we looked out of the front window, "Whurse," pointing to a horse. It was a breathing, whistling sibilant, the "wh" very prominent. Perhaps the new method of getting him to make the initial consonant sound of a word is bearing fruit. Later the same day he said, "Out of the way," which we instantly understood but cannot approximate. Then climbing on a table he said, "Si' dow'." He has also said, "Down there," and "John."

He still resorts to his own method in an emotional situation. Once he grew angry at the exclusiveness of two other children of his age and gibbered painfully at them.

At the end of the month we summarize the situation thus: Edward has waked to the difference between making noises and saying words. His vocabulary is not large but he is making a definite effort at the names of things.

DECEMBER.

Beginning to ask the names of things. Enunciation still sketchy. Voice production better. Shows appreciation of the distinction between singing and shouting.

Edward was absent a good deal this month. The last week he seemed sick on arrival and was isolated till we could get his parents to take him home. He was allowed to play indoors and no restrictions were put on his use of the equipment. It is interesting to note that for the hour he spent alone with an adult, during which time detailed notes were taken of his activities and reactions there is no record of communication in language.

The monthly summary notes definite advance: Edward is making slow progress and puts it up to himself consistently, asking the name of everything and repeating after us the initial sounds. He is talking in his own gibberish much less and occasion-

ally will come out with short phrases which we can understand. Asked several times, "What is that?" Still uses a much abbreviated form of speech.

Edward is singing a good deal lately. He recognizes the difference between singing and shouting. When he is particularly boisterous we ask him if he cannot sing instead. He then changes pitch and tone.

JANUARY AND FEBRUARY.

Beginning of the use of short sentences but sentence word still the chief reliance. Voice tone improving.

Edward improves steadily. He uses short sentences now: "What is that?" "That's a horse," etc. and his vocabulary is beginning to show variety. His gibberish is almost entirely a thing of the past, though we notice that he goes back to it after an absence from the Nursery. His voice quality has improved and he sings a good deal with a very sweet tone. We can always divert him from gibbering by asking him if he can make a pleasant noise or sing us a song.

He understands practically everything that is said to him and his responses are rapid. The physician says he will carry out all her directions at an examination better than any of the three-year-olds. This is all the more remarkable considering the unhappy experiences he has had with doctors in the course of his many accidents and illnesses.

Edward said, "What are you doing?" clearly enough so that several of us understood. He is using phrases and short sentences but the sentence word is still his medium for the communication of ideas. The notes on "Emotional Attitudes" suggest that he has reached a plateau or that his advance has been affected by his physical condition. Perhaps because of absences, nine days in the month, his disorganized attack on the environment and his excited manner have returned. His effect on the group is notably disturbing, his contribution being almost inevitably a destructive one. That is especially true during indoor play.

MARCH.

First attempt at social use of language.

As has been stated Edward has shown a good deal of disorganization and the first of the week (February 28-March 7), he disturbed us very much by his return to grunts and shrill cries and chattering. There are numerous curious calls that he makes and he has revived these unpleasant and animal-like cries. He has, however, during the same period carried on quite consecutive conversation. After we went down to luncheon one afternoon, Edward pointed up stairs and said, "Up—play?" We said, "No. We are going out of doors after milk." Edward asked, "Tomorrow?"

He speaks of Jane, a child who has left us, almost every day, either asking where she is or saying, "That's Jane's bed." One day he said her name several times and then said, "Back?" We said, "No, Jane isn't coming back. Jane is in the country." He repeated the word, then thumped himself on the chest and said, "Ma—country." (I am going to the country.)

One day during the last week of March, Edward got a flatiron to play with. He brought it to me, saying, "Hot!" There followed a play of burning me with the hot iron. Children enjoyed it hugely. Finally I showed Edward the scar of a real burn on my arm and asked him if his iron had made it. He looked sober, shook his head and pointed up to the part of the house where my apartment was, saying, "Up stairs." These are the first records of conversation for the purpose of sharing experience.

Monthly Summary: Edward's use of phrases and short sentences has increased. He has become much more fluent and clear in his speech. It is an activity which he seems to enjoy. Early in the month we were much disturbed to find that he had returned to grunts and gibberings. It was after quite a long period of time at home, but the situation righted itself and although he tries us much by shouts and howls we feel that it is now his way of getting rid of energy, rather than a substitute for speech. He gets over to us all that he needs to say and understands us perfectly.

APRIL.

Original use of language to describe experiences.

Edward is very fond of a boot-black game of his own devising. He approaches, says, "Shine, shine?" and goes through a very dramatic and realistic game of polishing our shoes. He called one of us to play with him. Taking up the ball, he took an appropriate position, calling, "P'ay ball!" He has changed the form of his requests. Formerly, in March, he said, "P'ay?" if he saw a child with a toy which he desired. Now he names the article and puts it into sentence form. "I want hammer—me."

For a time during the month difficulties again arose. Edward has become very obstreperous. We wonder sometimes whether there may be an emotional blocking because of inadequate language expression. When he came to us he had a large range of sounds and calls which represented language to him. As he has learned the possibilities of communication through speech it may be that his powers have not kept pace with his desires for adequate expression. He reverts to his original gibberings less but he gets much excited and spins around, a purposeless zigzagging about the yard, and his behavior is at times a very demoralizing influence. It has made it difficult to work out anything with the other two older children, who seem ready for more regular and organized occupation.

Edward is much interested in coal carts and recognizes them as far as he can see them. He points them out with great excitement, saying "Coal, coal," or "I see coal—me!"

The three Olders were taken for a ferry trip. When they returned Edward was asked about it. His account was an adequate and effective piece of description. "I saw water—I went in boat. Boat go in water, sh—sh—sh," bending his body and moving his hands as if he were stirring up the surface of the water, hands held flat, palms down, then saying, "Gong-gong, gong-gong," his own interpretation of the experience.

Edward was allowed to walk in from the street to David's home with him a while ago. Since then he never fails to ask, "Home—Da—me?" when we approach the house.

MAY.

Thoroughgoing use of language. Gets over ideas. Joins in general conversation. Uses voice in singing.

We discovered more than once this month that Edward was applying his German vocabulary at the Nursery. He found an ugly two-pronged fork in the yard. We asked him for it, as it was a menace. He called it what sounded like "Garb" and we did not think at first that he was speaking German. He sometimes speaks of his hat as "hut" but generally calls other hats or caps, "hats." He shows a peculiar sentence construction. His habit of tacking on "Me" at the end of a sentence suggests the French "Moi." "I want to jump—me". "Can—me." "I see balloon—me." "I have home balloon." "Where dog?" "The dog has gone away." "Where is gone dog?"

He and George are in the stage of reiterative inquiry which is more a sort of exercise in language than real interest in finding out. What they want is to inform not to be informed.

E.: "Wha do man?"

C. R.: "The man is fixing the house."

E.: "Man fix house? I can fix house—me." Then immediately, "Wha do man?"

C. R.: "What is the man doing, Edward?"

E.: "Man fix house."

This type of conversation is repeated ad infinitum.

One day we made dire threats because his mother had dressed him in a button back suit which had to be entirely removed whenever he was taken to the toilet. He looked up with a twinkle and a sweet smile and said, with much emphasis, "No—— s'goot mamma!"

He made a construction with the blocks which pleased him very much and after he had called C. R.'s attention to it said, "Tell John." (H. J.) He talked a good deal while building on this occasion, muttering "See-saw" at intervals, reminded by seeing a long block lying across another. Finally he found a very long block and exclaimed, "A long board" and laid it up on end on a pile of blocks. After that he piled up his blocks indiscriminately, singing a charming little phrase in a very sweet voice.

He is not to be taken in by childish jokes. The big packing box stood against the fence. He dropped his hammer behind it. We said, "Now the hammer is gone." "No, no," said Edward, "hammer not gone," and he set about moving the box so that he could get it.

One day he suddenly burst out, "Where Jane?" His question was turned back to him and he answered, "Jane sick." He was reassured. "Oh no, Jane is well now. She is in the country." In heartfelt tones he said, "Come Jane." We suggested that a letter should go to Jane. Half an hour later he came up and said, "Letter Jane." We inquired what he wished to say to Jane. He repeated, "Come Jane." We asked what he wanted Jane to do and he answered at once, "Come Jane play in the yard."

Arnold and Edward spied a cat walking on the fence.

A.: "O kitty, kitty!"

E. (begging): "See cat—me."

A.: "She's walking on the fence."

E.: "Walking on fence?"

C. R.: "Yes."

E.: "Fall cat?"

C. R.: "No, I think not."

A.: "Kitty won't fall. She can walk."

C. R.: "See how she jumps from one fence to another?"

E.: "Jump fence cat?"

Cat began walking away and shortly disappeared.

E.: "Come cat, come cat."

A.: "Goodbye, little kitty."

E. (with feeling): "Come cat, come cat."

Edward found the rope and seat of a swing in a corner of the yard.

E.: "What's this, Carmen?"

C.: "It's part of a swing."

E.: "This—swing?"

C.: "Yes."

E.: "Want swing over there—me." (pointing to pebbled space).

C.: "I'm sorry Edward, but the swing is broken."

E.: "Broken?"

C.: "Yes."

E.: "Fix it—man." (pointing to workmen in adjoining yard).

Edward's progress from the first to the last entry seems to us to indicate his release from a cramping handicap and it has been encouraging to us to find that an analysis of our current records shows the steps in his development.

SUMMARY

As has been stated in the introduction, our Nursery School was not organized for the purpose of giving small children adequate physical care outside their homes, nor to relieve the needs of working mothers. We are trying to set up a laboratory in which growth can be studied. An environment favorable to growth must assure children physical care, but it must moreover provide them with opportunities for experience, experience in the use of their bodies and in dealing with things and with persons.

Our environment is not the product of one person's thinking. Long before the Bureau of Educational Experiments established our Nursery School, the City and Country School was conducting classes for children of three and four, and Miss Caroline Pratt's conclusions on equipment for small children have been the basis of our choice of play material. We have scaled down in some instances and made additions and changes as we felt the need on account of our lower age range. We are indebted to her, moreover, not only for her contribution to the subject of equipment but for the educational philosophy which underlies our method of approach to children. The establishment of a routine procedure, the development of a program for children of nursery age, and a policy on such questions as social and emotional control, discipline, etc., have been worked out by our staff, but there has always been opportunity for very free interchange of ideas between members of staff and Bureau. Our relations with the physician and psychologist have been very close. The problems of individuals, those of general environment and of method have been freely discussed with them. For two years we had Miss Harriette Hubbell, teacher of music in the City and Country School, on our staff in an advisory capacity. She conferred with us and very generously turned over for our use songs she had adapted for the children of the school. She also arranged and helped us to arrange many of the songs and phrases that we use as accompaniments to the activities of our children. The records have been the subject of frequent conferences with members of the Bureau and its staff, especially while Miss Mary Marot was working with us as Recorder.* Mrs. Mitchell has worked with us on language and we have based much of our approach on her conception of the function of language as play material.† Her contribution will be recognized in our statement of our procedure. On the whole I believe that the Nursery School may be said to represent a piece of "co-operative thinking."

It is too soon to draw conclusions. We believe that we have set up an

* See "School Records—An Experiment" by Mary S. Marot, Bulletin No. XII, Bureau of Educational Experiments, 1922.

† Op. cit. p. 36.

environment which is favorable to growth. We are attempting, as our experience widens, still further to modify and improve it. We believe that it will be possible within our laboratory to gather data of scientific value which will add to our knowledge of children's development. These data are still in the making. We must develop standards for making observations on children's activities, for taking records and for analyzing and assessing them. Further than that our aim and hope is that the knowledge gained may be converted into educational procedure for nursery children which is more fully adapted to their needs.

HARRIET M. JOHNSON.

TIPPETY-TOP!

MUSIC

We know little or nothing about what music means to the very young child, nor does it seem likely that we shall ever discover what he hears of a musical phrase and to what degree he is conscious of its pattern and form. But there is much outside of this that we can know concerning the effect of music on children of nursery age and younger, and our clue will have to come from the source that supplies us with all our data on the reactions of children —long and patient observation of their free and undictated responses to the environment provided. What do children do—how do they act—under this or that set of conditions? When a reaction valuable in our judgment is observed, when a desirable attitude seems to be growing in response to a stimulus, how is this reaction to be called forth often enough for the resulting habit-set to be assured? What sort of music must we provide to make habitual the desired sort of response? What sort of attitudes toward music do we want our children to grow up with?

In a general way I should say we want for our children these musical capacities and experiences:

1. The ability really to *hear* music, i. e., to know how to listen. Musical appreciation would seem to grow from this.
2. A background of experience with as good music as we can provide; a bowing acquaintance with the very best. If a child is fed and nourished on good musical fare, it is not likely that he will later develop a taste for unworthy substitutes.
3. The ability to respond freely to music—to sing or dance, to take part in musical expression of some sort without technical training. I mean that the individual should be able to allow himself an entirely free response to a musical stimulus—to have no inhibitions or self-consciousness about giving expression to musical impulses. We want a child to grow up with an active need and craving not only to hear but to express himself in music. He must come to think of music not as a thing apart, not as an art to be practiced only by the trained and gifted few, but as an emotional outlet and means of spiritual recreation that are the heritage of every human being. We must all come to be active participants instead of merely passive listeners. Believing in general that emotional intakes normally result (later if not at the moment) in creative outgoings, we try to foster that attitude toward music which will allow the creative impulse to express itself also musically. The urge to musical expression is closely allied with the urge to speech. If we can allow it to satisfy itself we shall add incalculably to the richness and beauty of life.

It is obvious that an evaluation on any of the old standards of a musical environment for babies is well-nigh impossible, and in consequence our program must be more or less arbitrary, at least until we gather evidence from our children as they grow older and until we have clearer ideas of what to expect. We have felt at the end of two years that even in the Nursery, and from day to day, there are certain manifestations from the children, certain developments, that may be traced to our work with them in music. Since the first year we have tried to test out our program on the following points:

A. *Responses during the daily music period.*

1. Is the attention of the group held?
2. Is there increasing musical response from the children?
3. Do the children register changes in rhythm and tempo?
4. Is the group held together during the music period?
5. Is there evidence of nervous strain or over-stimulation?
6. Are the children interested in the daily music period as such?

B. *Responses outside of the regular music period.*

1. How do the children respond to music combined with related activities?
2. How does the capacity to reproduce exact pitch and rhythm develop?
3. How do the children use music in their play?
4. Do the children's voices seem to improve in inflection and quality?
5. Do the children experiment with the musical instruments about the Nursery?

What evidence we have along these lines is obtained from actual observation. Records of musical responses were taken in the daily notes and as close an account as possible was written of the daily music period. The section at the end of this paper includes selections made from notes taken from day to day, amplified in one or two instances by a few explanatory remarks.

A general statement of our method of presenting music to the children should precede a description of the actual program. We have tried to make our method for music consistent with the rest of our procedure. Our attempt in the Nursery, to put it broadly, is to approximate as nearly as possible what we conceive the ideal home environment to be. We present no formal subject matter. There are certain types of situations that we consider valuable for children of this age to experience, and we plan an environment which in the natural course of events will present such situations. The children get their training in social adjustments through making actual contacts with others in the daily processes of living, and they develop techniques

of various kinds through free play with what apparatus we are intelligent and ingenious enough to collect. Our attempt is to liberate and to keep free the social attitudes, confident that the normal human impulse is an outgoing and social one, and that when we get a contrary manifestation it is the result of distortion by outside influences and maladjustments. We expose the children to what we conceive a beneficial environment, one in which they can freely experience, believing that in so doing they will set up healthy habits and attitudes for the future.

In the first year of our venture our musical program did depart somewhat from our general theory in that the music was presented by someone who came in from outside solely for that purpose, and in that we did make certain specific demands, at least to start with, upon the children's attention. The results were not entirely satisfactory, i. e., there seemed to be some confusion and resultant nervous strain on the children during the music period. Towards the end of the year conditions improved chiefly, we thought, because the method of presentation became freer and more elastic, instruments were taken away, and because the person presenting the music had by that time become a familiar part of the environment. The instruments—tom-toms, triangles, and tambourines—required in our judgment a degree of fine muscular adjustment and coordination for which children under three are not ready. As we talked the thing over, it seemed clear that our course lay away from whatever of formality there was in this first attempt. We decided to present the music ourselves as freely as might be. In general our later plan has been as follows:

I. Singing (with Piano Accompaniment) and Playing to the Children.

Every afternoon we invite the children into the room where the piano is, which is the general play room. I sing and play to them for from ten to fifteen minutes, using simple selections with marked rhythms and avoiding in general the more complex types of music. I have experimented on two occasions with a florid song and discovered that there was marked over-stimulation of the children as a result. This over-stimulation was manifested by shrieks and by much increased motor activity which soon became uncontrolled. The purpose of this daily period is to provide good music to which the children will feel entirely free to respond as their impulses and understanding direct. Taste and appreciation would seem to grow from this, and a familiarity with music calculated to prevent the later development of inhibitions and self-consciousness.

We request the children at the same time each day to "come in for music." They all come willingly and with eagerness, though it means leaving outdoor play, to them particularly desirable. If any should decline, however,

we should respect their desire. We make no direct demands during the music hour upon the children's attention, nor do we ask for any specific response. They are allowed to carry on freely what pursuits interest them, such as building with blocks or playing with dolls or with the Montessori material. The one restriction is on noise—a perfectly logical necessity (as we try to make clear) for the sake of those who wish to listen. Since it is physiologically undesirable, even if it were possible, to secure the undivided attention of children of this age on any one interest for an appreciable length of time, we make no effort to demand an exclusive preoccupation with the music I furnish, but seek an approach to the child through whatever activities claim him at the moment, trusting the power of the stimulus to bring to his consciousness as much of the musical part of his environment as he is able to receive. The association of music with activities might conceivably encourage a feeling that music is an integral part of living and not something necessarily requiring attention in and for itself. Whatever more subtle experience they go through along with this unrestricted activity will remain associated with music and should enrich the more conscious and ordered response to it which comes with increasing years, right training, and opportunity for expression.

Examples of material used:

Songs:

Arne: Ariel's Song; When Daisies Pied; When Icicles Hang by the Wall.

Bantok: One Hundred Folk-Songs of All Nations: Il était un' bergère; Sur le pont d'Avignon.

Bentley: My Old Dan.

Brahms: Lullaby; The Sandman.

Caldara; Sebben Crudele.

Carissimi: Vittoria, Vittoria.

Handel: O Had I Jubal's Lyre; Rejoice Greatly; Come Unto Him; I Know That My Redeemer Liveth.

Morley: It Was a Lover and His Lass.

Müller: Alte Deutsche Volkslieder: Der wilde Jäger; Es waren zwei Königskinder; Es steht ein Lind in jenem Thal; Der Todt von Basel; Es ist ein Reis entsprungen; Es ist ein harter Schluss; Ich ging emol spaziere; Hemliche Liebe; Schwesterlein, wann gehn wir nach Haus? Wenn ich ein Vöglein wär'; Es steht ein Baum im Odenwald; So viel' Stern' am Himmel stehen; Es, es, es, und es.

Mozart (?): Drink to Me Only With Thine Eyes.

Nursery Rhymes: Little Polly Fliners; Sleep, Baby, Sleep.

Pergolesi: Nina; Se tu m'ami.

Scarlatti: O cessate di piagarmi; Già il sole dal Gange.
Schubert: Who Is Sylvia; Ave Maria.
Scott: Lullaby.
Unknown: O Mistress Mine; The Willow Song.

Piano Selections:
Beethoven:
Minuet—Sonata Op. 14, No. 2.
Larghetto—Second Symphony.
Peasant Dance—Sixth Symphony.
Mozart:
Sonata in A major—First and third movements.
Haydn:
Surprise Symphony—First movement.

II. Singing Songs (Unaccompanied) to the Children at Other Times During the Day.

Whenever it seems suitable we sing to the children songs which we try to fit to the occasion. Going to bed and getting up are prime moments for this sort of thing. I do not mean that we pursue a child and inflict music upon him willy-nilly, nor do we interrupt an activity by forcing a song upon his attention. When the time seems propitious and we feel we can enhance interest and pleasure or broaden a particular experience by singing we are very likely to accompany an activity with a related song. The conscious object of this type of song, I should say, is to deepen and enrich motor experiences by means of rhythm, melody, and language. The natural impulses of small children express themselves through motor activity. Their interest lies usually in the activity itself for its own sake. There is unlimited opportunity for motor-accompaniment songs in a set-up like ours where the motive underlying the choice of environment is to give children sense experience through motor activity. A song like "Roll the Ball Along" adds diversion to a ball game; "Chu, Chu, Chu, Says the Big Engine," enriches the child's association with all the material related to trains.

Experiences other than those involved in play situations may also be enriched by this type of song. A state of relaxation may legitimately be induced at bed-time for instance. "Sleepy Time Has Come for Moya" we find good material for anticipating and heralding a daily proceeding. "Arnold Puts on His Stockings" furnishes a notion valuable educationally and in a form which Arnold is likely to accept and to act upon (though of course we never insist on this) with more or less willingness. Besides combining music with ordinary daily activities, these songs sometimes help to set up a pleasurable association with situations not in themselves necessarily pleasing. It may well be that a

feeling for pitch and rhythm grows under this type of song which is strongly accented, extremely simple in pattern, and directed searchingly upon one child at a time. Such songs contribute additional material to the memory content, for the children learn quickly and there is much repetition of simple language and melody. We use songs adapted by the City and Country School, as well as melodies from other sources, varying the word content to suit the situation. Sometimes a lullaby sung throughout on *la* is entirely effective. Word phrases are short and crisp and more or less complete each in itself, so that an outstanding thought may be isolated easily for greater emphasis. The older children reproduce these songs a phrase or two at a time.

Evidence of pleasure at the addition of music to an activity has been constant throughout our experience. Almost always we win response in the form of a smile or of increased (occasionally decreased) activity when a phrase or song is chanted at an appropriate moment. Bids for a repetition of the magic formula are frequent. Falls and other accidents turn into jokes to the accompaniment of a musical interjection, and unpleasant or difficult situations resolve themselves. Sleepy songs at bed-time are particularly appreciated, and the more sensitive and suggestible children relax visibly and pleasurably under their influence. Milk-drinking presents difficulties for some children. A refrain like "Sippety sip and down again" often gains the desired result. On one occasion the cabalistic formula "Drink your milk" thundered on a monotone in the middle of the voice worked like magic on one small slowpoke and was used by him in great good humor to encourage an even slower brother.

Examples:

Songs used by the City and Country School:*

Sleepy-time.
Peep, Gray Mousie.
By-low.
Roll the Ball Along.
Chu, Chu, Chu, Says the Big Engine.
See the Engine Rush Along.
Tick-tock, Says the Clock.
Pussy-cat.
Bow, Wow, Wow.
Arnold Puts on His Stockings.
Shining, Shining, See the Sun Shine.
Hop, Hop, Hop.
Swing, Swing, in the Yard.

* For the City and Country School songs, for many of those adapted to nursery school use, and for the instruments described (see IV) we are indebted to Miss Harriette G. Hubbell, teacher of music in the City and Country School.

Adaptations of our own:

Swing, Swing (Grieg).
Arnold's Going Out to Play (Haydn).
Jouncing, Jouncing (del Riego).
Here We Go, Bumpety, Bumpety, Bump (Here We Go Round the Mulberry Bush).

The music of the City and Country School songs is largely of French and German folk origin. The words in all cases are adapted to the child's interests and experiences.

III. Singing Short Phrases or Intervals (Two Tones Differing in Pitch).

We occasionally conduct conversations with the children in a sort of improvised chant, especially with those whose speaking voices are poor or unpleasant, and we get much of this sort of thing from them in return. We often use intervals and short phrases to gain the attention of a child in a particular situation—he enjoys it and is likely to respond more rapidly. We use short phrases in situations involving play with apparatus: going up and down stairs, slide or ladder, for which we sing ascending and descending scales; see-saw; swing; and of course, for running and jumping.

Over and above the immediate pleasure and enrichment of activity, I believe that pitch discrimination is very definitely assisted by this means, and that the child is encouraged to hear and to reproduce correct intervals. Babies of nursery age hear and grasp so few tones at a time that they are more likely to remember and to reproduce phrases if these are short and detached.

Examples:

Jump down (octave descending).
Climb up the slide (arpeggio on tonic chord ascending).
Slide down (portamento octave down).
Up, up, up, up, up, up, up, up (scale ascending).
Down, down, down, down, down, down, down, down (scale descending).
Up-down, up-down (octaves), this is the way we go.

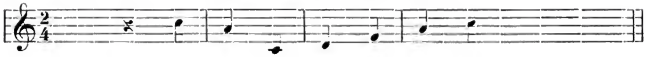
IV. Allowing Experimentation With Simple Instruments: Swiss Bells, Sandbars (Sandpaper Covered Blocks), Drums, Marimba, Single String (Catgut) Stretched Across Board.

We keep a set of four Swiss bells tuned on the tonic chord of E♭ hanging in the playroom, and the children are free to use them at any time. Home-made drums constructed of butter-tubs, covered with shellacked aeroplane

MUSICAL PHRASES USED SPONTANEOUSLY BY THE CHILDREN.

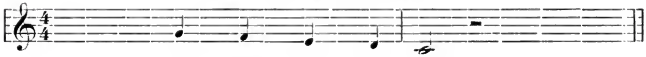
October, 1920.

David (1 year, 10 months)



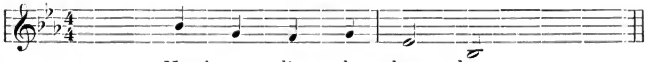
Ba - ba - ba - ba - ba - ba - ba

Jane (2 years, 4 months)



Chu chu goes the train

Jane

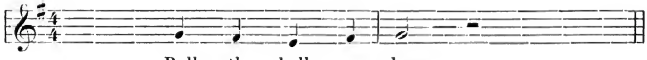


Here's a lit - tle ba - by

Jane

(Humming)

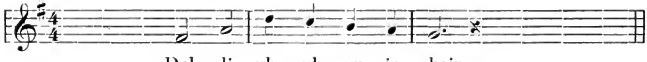
Jane



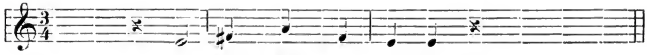
Roll the ball a - long

November, 1921.

Moya (1 year, 11 months)



Dol - lie uh - uh - up in chair



I see Moy - a all gone

Moya iron dollie's dress

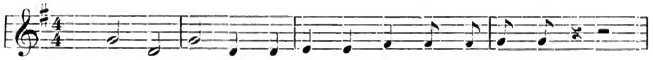
linen, and sandbars (small wooden blocks with sandpaper stretched around them) stand on the shelves and are given to the children on request. Three pieces of wood tuned on the first three tones of the scale and mounted on a block, and a very rudimentary stringed instrument have proved of much interest. We allow free experimentation with these instruments, taking care that the child's interest does not run wild. As soon as the stimulus ceases to be pleasure or interest in the instrument as representing something musical, and degenerates into mere noisy muscular activity, we substitute material which better satisfies that need and with which we do not wish to preserve specific associations.

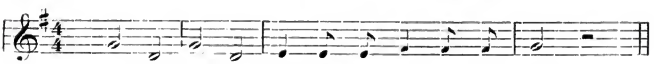
NOTES ON RESPONSES MADE BY THE CHILDREN

October 5, 1920.—Jane (2 years, 8 months) left play and stood beside piano as I played. She listened quietly about five minutes, then kept busy ironing the rest of the time. She punctuated by clapping after each selection.

October 6, 1920.—Both Jane and David (1 year, 10 months) eager at mention of music. Both requested more after first and second songs.

October 26, 1920.—I went upstairs with Jane for our music period. The other children were to follow. David, who sleeps in the front room, had just waked up and I began to dress him. We had nearly finished the process when Jane became interested in looking out of the window. I sang quietly "Jane-O, Jane-O is looking out of the window, Jane-O, Jane-O, what do you see in the street?" She did not look around but answered to the same general melody (sometimes a trifle off pitch): "Little boys and little girls and mens and ladies." Then I sang: "And wagons and automobiles and old Dannies." She repeated this after me and went back to her first answer as I repeated my original question. We kept up this antiphonal chanting for more than





five minutes. She answered many and varied questions from me, for instance, "Jane-O, Jane-O, where are the painters? Jane-O, Jane-O, have they gone to lunch?" (This reference was to workmen in the house across the street.) She sang, "The painters have gone to lunch." She varied rhythm and melody somewhat to suit longer and shorter sentences. Some of her descriptions of the passing show were complicated and involved—almost poetic—and once she sang, "Here's a big truck and it is green." From the way she treated her sentences and adapted them to the melody it seemed to

me that her interest was primarily musical. It would have been easy for her to tumble out her words headlong as in talking, but instead of this it was very definitely singing, and she took pains to fit the words to the melody, holding some over and dividing others when necessary.

November 15, 1920.—Jane, George and David stood beside piano all through session. The group seemed less noisy and more restrained than it has been.

November 19, 1920.—There seems to be more out-goingness and sociability between the children during music than at other times. They engage in affectionate manifestations and seem to be having a very good time. It was during the music period that George for the first time entered into actively uproarious relations with the others. Up to that time he had been quite reserved.

In November.—George (2 years, 6 months) manifested his interest by standing beside the piano. After that his responses became active and increasingly musical. First record of his "dancing" occurs November 23. From November through February the response was chiefly motor—walking, dancing, swinging arms, using instruments. After February he became vocal, singing, chanting and humming, often combining these with motor activities. During May (the last month) he seemed to develop considerable feeling for the character of a bit of music, and there are several records of his responding quite in the general spirit.

November, 1920.—Edward (2 years, 7 months) was stimulated to a much greater show of affection than we had hitherto observed. Patted Michael's cheek and made advances to Arnold who received them pleasantly. They lay down together on the floor for five minutes, arms about each other's necks.

Up to the end of November, 1920, Jane (2 years, 9 months) was more or less static during the period. Notes at that time record: Jane now goes about her work busily, humming a phrase here and there, stepping to a few notes occasionally, always in time, showing that she is quite aware of what is going on.

November 29, 1920.—The children are diverted if anyone, even H. J., is in the room, especially if she busies herself with other things.

February 16, 1921.—We had three visitors during music. They remained in the rear nursery. The children seemed unaware of their presence, playing well and in an orderly fashion.

December 2, 1920.—Several of the children running to a simple dance rhythm. Jane (2 years, 10 months) grew tired and took up a doll followed by Arnold (2 years, 10 months). I switched over into a lullaby, playing it over and over. Jane wrapped the doll up in covers, took it over to the corner and put it to bed. Then she sang with the piano the first phrase of the lullaby (a familiar one). Arnold tiptoed over to the bed where the doll was lying, holding up his finger for silence.

December 8, 1920.—When I began the Beethoven March (from Sonata Op. 14, No. 2), David burst into "Jog-jog," evidently feeling the likeness. The rhythm and tempo are about the same, the respective keys C and G. The harmonies are also very similar through the first measure. On that same day the children asked for the sandpaper covered blocks. They experimented with them and when my music fell into a jig they immediately responded and danced up and down together, sandbars scraping busily. They became so excited that they paid no attention to another change in rhythm, only gradually subsiding.

January 20, 1921.—After a waltz tune I played the Turkish March from the Mozart Sonata in A, which is markedly rhythmical. Arnold, who was building, caught the inflection. He clapped his blocks together several times, jumped from one foot to another in exact time, and in the last section sang a syllable most nearly like "Yip" on the stressed beat. There was no approximation to pitch.

February 14, 1921.—I was putting Jimmie (1 year, 7 months) to bed and singing all sorts of phrases in octaves, chiefly consisting of two or three tones. The words were his name and "sleeping" or "sleepy." He repeated several phrases literally

getting the intervals with exactness. Then he began variations, i. e., I would sing a high tone, F above middle C perhaps, and Jimmie would repeat the word an octave, a third, or a fifth lower. He kept the key perfectly and preserved the tonic chord. Once he came down to the third below the octave, an interval of an eleventh. His technique of tone production varied for the high and low notes. The high were very pure, free head tones and the really low had the throaty heavy quality of his speaking voice.

February 21, 1921.—David and Michael squealing. H. J. said, "Can't you make a lovely song?" Silence for a moment. Then Michael began swaying, lifting his feet (both children were seated on table in dressing room), and singing an indistinguishable song in regular rhythm, two-four probably. David also sang.

March 16, 1921.—As an experiment I began to sing Handel's "O Had I Jubal's Lyre," a selection I have tried only once before. It is a florid song, full of runs, and the tempo is rapid. The effect today was even more noticeable than on the first occasion—it excited the children to a riot. They shouted hysterically, and raced about in an entirely uncontrolled manner. I did not go entirely through the song, but switched over to Handel's "Come Unto Him," which is the very antithesis. The resulting calm and quiet were instantly noticeable. Two months ago, while Jane was here especially, we did not get so rapid and direct a reaction to music of varying character. We were not even sure then that there was a difference in effect except in the case of a familiar song that carried with it a specific connotation like "Sleepy Time."

March 23, 1921.—Richard (1 year, 9 months) brought over the musical bells to the piano and pounded on a chair in absolute time for about eight measures, two-four time, as an accompaniment to the Mozart Turkish March. David (2 years, 3 months), was watching me as I finished a song. As I turned and caught his eye he burst out singing on the same pitch on which I ended.

May 2, 1921.—Richard (1 year, 11 months) was seated at the other end of the south nursery and the piano is at the front of the north room. I was playing a very soft lullaby. When I stopped he immediately hurried up beside me, pointed and said, "More."

May 4, 1921.—Richard experimented for more than ten consecutive minutes with the Swiss bells. He held the cord at arm's length and shook it back and forth, slowly and then faster, varying the volume of sound, making his body go or keeping it quiet and moving only his arm. He listened seriously and intently all the while.

May 6, 1921.—All the children in south room. I stopped the music suddenly and waited to see what would happen. The room was not very quiet. In about ten seconds Richard and David independently extricated themselves from the group and came over to me. David said, "Carmen, I want some more music." Richard pointed and said "More."

May 18, 1921.—George (2 years, 11 months) saw a cat climbing off the back fence. She picked her way carefully along a plank. As he watched her he sang "Down, down, down, down, down," on five notes of the descending scale—the same phrase that we use going downstairs.

May 19, 1921.—Moya (1 year, 5 months) sang in the Ford loudly and with much range.

In May our psychologist, who visited us each week through the year, remarked on the improvement in the quality of Arnold's voice. She noted that not alone was his voice much less foggy and throaty but that his enunciation was clearer and freer.

May 20, 1921.—Jimmie (1 year, 10 months) handed me a ball, pushing at me as I sat in a chair and said, "Play." I bounced it up and down to the rhythm of "Bounce the Ball Along," singing at the same time. He insisted on a half dozen repetitions, dancing up and down and occasionally singing. He then perched himself on a cardboard box and thumped with his heels against it. I sang with his thumps and he kept the rhythm very well for several seconds, seeming to enjoy the community of play.

May 23, 1921.—One day when Moya and Jimmie were playing together, one or

both began singing "Chu Chu." I joined and we sang together the entire song. Both the children followed the upward rise of voice on the high sustained "Too-oo."

May, 1921 (monthly summary).—Musical expression is pretty general at times other than during the period. For the most part the melodies are formless, composed of a few tones, usually not a great range and often without words. Jimmie sings when putting dolls to bed or when he is going to bed himself. George uses the sandbars and sings a phrase of the engine song when he builds. He sings his own melodies a good deal, using chiefly the whole tone scale. Moya, during May, sang a good deal in the Ford in the mornings in a loud, strong voice and appreciated my vocal efforts at that time. Edward sings at his building, sometimes reproducing our melodies, sometimes improvising. During the regular music periods we notice a preponderance of what might be called rhythmic activity—running, jumping, pounding, bouncing balls. Children build at those times who use the blocks little through the day. Coming to school and going home are occasions for great vocal effort, one rather shy and quiet child in particular being inspired to improvise at these times. In general, the children sing a good deal as accompaniments to their activities.

October 10, 1921.—David (1 year, 8 months) was humming as he trotted about. I called to him with a *Hoo-hoo.* David replied on identical key. He was at foot of slide when Richard started down. I warned him, singing, *Richard coming, toot-toot!* on E, an octave and a third above middle C. David instantly made a try at the tone, hitting C two notes below (verified). I repeated my phrase and he sang it again a shade nearer in pitch. The third time he hit it exactly and sang it twice more very joyously.

October 20, 1921.—*German folk song* (played). Richard (2 years, 4 months) sat on table drumming with hand. Laddie (1 year, 9 months) "froze." David drinking water paid little attention till second number (waltz tune) when he ran over to the piano and then away uttering shrill squeals.

My Old Dan (sung with piano). Laddie ambling about "dancing," then went off to push kiddie-kar. Richard still beating time. Swung arm in time to each selection. It was remarkable to note that in *My Old Dan,* which doubles up the time in the second measure (quarter notes in first, eighths in second), Richard changed with it, beating double time after the change, and returning in the third measure to quarter notes. This seems to me exceedingly unusual for this age (2 years and 4 months).

Where the Bee Sucks (sung with piano) David pulling doll's bed, went to piano and stood beside it through nearly one stanza. Richard stopped beating at the change of rhythm, looked at me questioningly through a few measures, then began swinging arm again in time.

When Daisies Pied (sung with piano) Moya (1 year, 10 months) lifted up her voice squawking. David held doll and squawked at it. Laddie ran about. David pushing doll's bed about, Laddie playing with kiddie-kar. Moya at piano, David joined her smiling. As I ended, Laddie stopped activities.

Moya and David stood at piano till I got well started on a French song (played). Moya went off singing so nearly in key that it seemed she must recognize the song. Richard patting table in time.

October 24, 1921.—Jimmie (2 years, 3 months) banging tin pipe with broom handle. I sang *Pound, pound.* He was enraptured, shrieking and dancing up and down. Experimented with wall, iron pipe which gave a beautiful ring, pail, kiddie-kar, slide, floor, etc. I sang for several moments and he joined me once or twice but his energies were so engaged by pounding that he had none left to sing with.

Later I began to sing *Pound, pound* again. He was sliding but at the first note he rushed over to me and began hitting the sand box in exact time. Kept it up while I sang. No variation in rhythm. He stopped when I did, then started to run. I sang *Running, running, Jimmie, running* in time with him. He burst into a shriek of glee, and went on with renewed vigor. He circled the center seat a dozen times. Moya soon joined him. She kept excellent rhythm, in fact both kept in absolute tempo. I

sang and marked time with my feet. Moya kept running after Jimmie. Jane looked on with shrieks of glee, David sang with me.

October 25, 1921.—Jimmie sang down through an entire octave and into the next. I could not get him to repeat it. On another occasion he put a small board across the edge of the skylight seat, put one end between his legs and teetered it up and down, singing *Up, down,* an exact octave middle C to C above.

October 26, 1921.—I sang *Up, up, up* on three notes of scale. Sonia (1 year, 8 months) going up stairs with me, instantly supplied fourth tone. Later she repeated stunt on fifth note. She was squealing and I asked her to make a nice sound, making one myself. She repeated a soft tone over and over.

November 7, 1921.—Moya (1 year, 11 months) sang a great deal to a doll which she bedded carefully.. When one child begins to hum it is very apt to set the others off and a faint murmur of pleasant sound ascends from the group.

November 21, 1921.—Michael (2 years, 5 months) sang a great deal in a loud tone about "dollie." This word was repeated over and over again, strung together by a lot of unintelligible sounds. He stood quietly leaning over the slide balcony railing as he sang, quite absorbed, swaying sidewise with a rolling rhythmic motion. His voice was throaty but with more musical quality than it had when he first came. On Friday he and I were coming down from the roof. I sang through the octave on *Down.* He joined me, hitting the first note a third below. He maintained that relation, a major third, singing down six tones of the scale with me.

December 12, 1921. Just before music began, Jane (1 year, 6 months) was playing with a doll.. Michael (2 years, 6 months) and David (1 year, 10 months) were at the cupboard. I began with a folk song with marked rhythm. David shouted and marched. Michael lifted up his voice.

Es, es, es, und es. Jimmie (2 years, 5 months) marched across the floor, definite marching steps and accurate time. Michael had taken from the closet a box filled with cubes and some dominoes.

Wenn ich ein Vöglein wär. Moya (2 years) doll in her arms, stepped across floor and back again in almost exact time. She quickened her step with the increase in the tempo. This threw her out for a moment, then she resumed her march. Kept it up at least through one stanza of song.

Es steht ein Baum. Michael and David seated themselves at a table, Michael with dominoes, David with cubes, piling them up or laying them in long lines. They were very orderly and quiet. Moya again marching, absolute time, lifting her feet high. Jimmie sat swinging his foot keeping time.

So viel' Stern'. David pushed the box of cubes across the floor to the piano to call my attention. He fell into the rhythm—a push to a beat.

My Old Dan. Moya sat herself in a small chair, crossed her feet and swung them, keeping almost perfect time. She could not maintain the rhythm constantly but would regain it almost at once.

December 19, 1921.—Michael and Jimmie experimented with Swiss bells, hitting them with blocks, very strongly for about five minutes. Suddenly one of them, I do not know which, began to sing a widely inflected chant, strong and full tone, great vigor. There was not entire and absolute harmony between the tempo of the song and the played melodies but there was very good accord. On occasion both were in the same rhythm. No words were distinguishable until I began to sing *Pussy cat* for David who had brought over the appropriate box cover for the purpose. I was sitting across the room and sang in a very gentle voice. I heard Michael and then Jimmie take up "Pussy cat, pussy cat," and Jimmie began to stroke Michael as we have done on occasion. They sang fully five minutes.

January 9, 1922.—Moya (2 years, 1 month) up on platform sang *Hoo-hoo,* C to A. I answered, then she went down to A-F. Later she sang C-A again. I answered on A-F and she repeated. I went down to E-C. She tried for it and gradually brought her voice down. Moya and Jimmie (2 years, 6 months) on balcony. Moya started *Hoo-hoo.* I repeated. We sang it back and forth three times. I then changed the

interval. Moya started on the new tone, came to the second not quite low enough, slid down to it at once. Jimmie got it after that. We repeated the performance several times.

Michael (2 years, 7 months) answered *Hoo-hoo,* C-F, correctly.

I sang to Moya, *Moya drink your milk,* down scale. Jimmie echoed.

February 27, 1922.—Jimmie (2 years, 7 months) banging with hammer on pipe. Richard (2 years, 8 months) chanted *Pound, pound.*

H. J. undressing Moya (2 years, 2 months). She beat with heels as she lay on tub. H. J. asked: "Can you thump a song I'll sing?" Moya: "Yes." H. J. (singing): "Thump, thump, with your heels go thump." Moya held one leg in air till H. J. started, giving two beats on "with your." She repeated it twice using both heels together. H. J. later tried it on Sonia (2 years). She thumped in approximate time with right foot.

Moya with doll. She sang first line of *By-low, by-low, Baby's in the Cradle Sleeping,* in perfect time and pitch. Then she varied it by singing a phrase of her own.

March 27, 1922.—*Es, es, es, und es.* Richard (2 years, 9 months), Jimmie (2 years, 8 months), Sonia (2 years, 1 month) and Michael (2 years, 9 months), pulled four chairs into line and sat in a row near the piano, swinging their feet back and forth. There was also some humming. At one point Michael and Jimmie took up a refrain and squealed loudly. The four then picked up their chairs and scattered, gathering for the next minute or so in groups of two or three here and there.

Heimliche Liebe. Chairs set in another row. Jimmie and Michael kicking as if a jig were being played. Off again, Sonia, Michael and Jimmie marching with chairs held ready to sit in. Michael sat and kicked very fast. Another row formed, Jimmie, Moya and Sonia. Mollie (1 year, 5 months) tramping about very actively. Chairs tipped and pushed by Jimmie, Moya and Sonia.

April 24, 1922.—Mollie Anne (1 year, 6 months) took two tones after me on *Up,* absolute pitch.

Moya (2 years, 4 months) sang up through an octave and a half which took her as high as her range allows. Repeated later in week as she was sitting at a table playing with a doll.

June 12, 1922.—Jimmie (2 years, 11 months) wished to go high in the swing so H. J. chanted on E-G, "Swinging, swinging, swinging high," then asked "What does Jimmie see?" Jimmie chanted back, "I see a 'Merican flag up high—I see men on the roof," etc. Then she asked if he could see a green tree. He could, so they made a swinging song and each time he answered though not in tune or in time.

"Swinging, swinging, swinging high.
What does Jimmie see?
I see a flag against the blue sky.
I see a green, green tree."

The foregoing brief account discusses an experiment that has not yet reached the status of anything more than an attempt to study a situation. The time has been short, conditions have not been made constant, and observations are still to be evaluated and followed up. The future, too, is in some measure the test of what has been attempted in these three years, and the future is still ahead.

The justification for our music program is that it has seemed to call forth healthy activity at the moment, and to be setting up a basis for healthy future attitudes. Beyond this we can make only tentative claims for a point of view that may not be final.

CARMEN S. REUBEN.

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